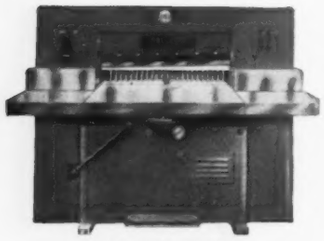
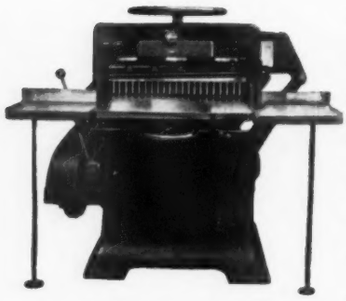
PRINTING EQUIPMENT *Engineer*

AN INDUSTRY-WIDE TECHNICAL PUBLICATION



370 AUTOMATIC



DIAMOND HAND CLAMP

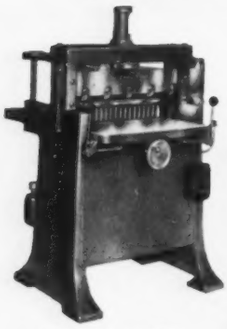
HI-SPEED QUOIN

Saves up to 80% lock up time. Self-contained . . . direct expansion . . . no reglets . . . no work-ups.

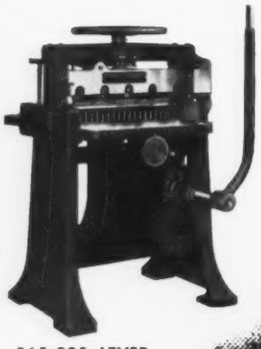
QUOINS

CHALLENGE QUOIN

3 sizes — dwarf, small and large. Beveled heels and points. Guaranteed keys.



265-305 POWER (HYDRAULIC CLAMP)

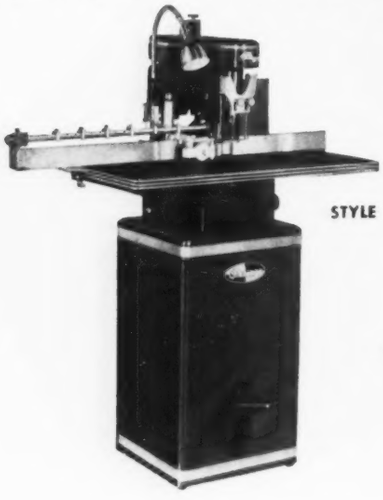


265-305 LEVER

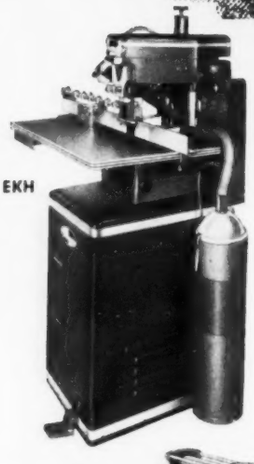
CUTTERS

11 styles and 7 sizes. Ranging from lever cutters in bench and floor models to the new automatic cutter with hydraulic clamp.

dependable CHALLENGE PRINTING EQUIPMENT AND MACHINERY



STYLE E



STYLE EKH

LABOR-SAVING IRON FURNITURE

Full line of standard sizes. Also made-to-order.

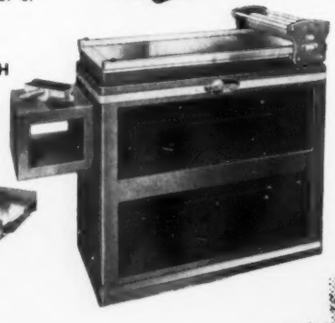
IMPOSING SURFACES

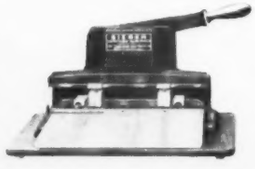
Precision ground semi-steel. With or without rabbet.

DRILLS

9 models . . . with slotting and cornering attachments. Operated by hydraulic, foot or hand power.

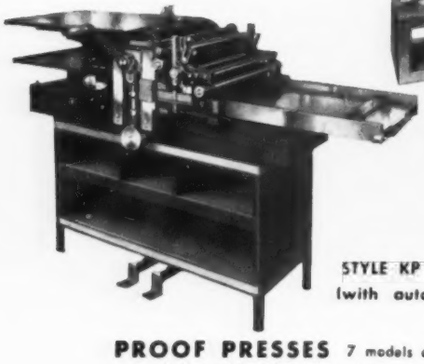
STYLE 1534 H





SIEBER PUNCHES

6 models — hand and foot power.



STYLE KP (with automatic power inker)

PROOF PRESSES 7 models and 7 sizes. All of cylinder press design with reciprocating bed on anti-friction rollers. 704

THE CHALLENGE MACHINERY CO.

Office, Factories and Show Room: Grand Haven, Mich.

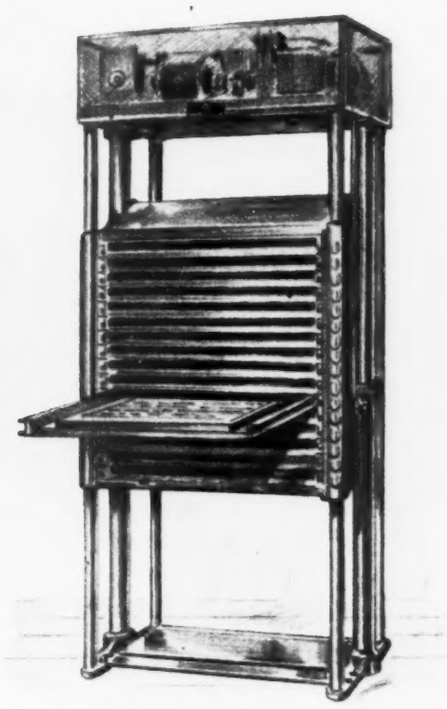
Challenge

TRADE MARK ®

Over 50 Years in Service of The Graphic Arts

DEALERS IN ALL PRINCIPAL CITIES

cut composing room costs with a Sta-Hi Form File



STA-HI® *Form File*

- CHECK THIS LIST OF FORM FILE FEATURES:

✓ Stores 16 full page newspaper forms in a "Vertical Filing System" occupying only 7 square feet of floor space—slightly more than space required for one make-up truck.

✓ All forms are transferred to or from the Form File at convenient truck-high level—no stooping or straining necessary to reach any filing tray.

✓ Ruggedly constructed — electrically welded throughout. Form Files built 16 years ago are still performing perfectly day after day in composing rooms all over the country.

✓ Safe, powerful electro-hydraulic system operates carriage that houses filing trays. Carriage is raised, only, by power; lowered by gravity. Low operating and maintenance costs.

✓ One operator can easily transfer one form in less than one minute. Forms can be completed, made over or "killed out" without removing them from the Form File.

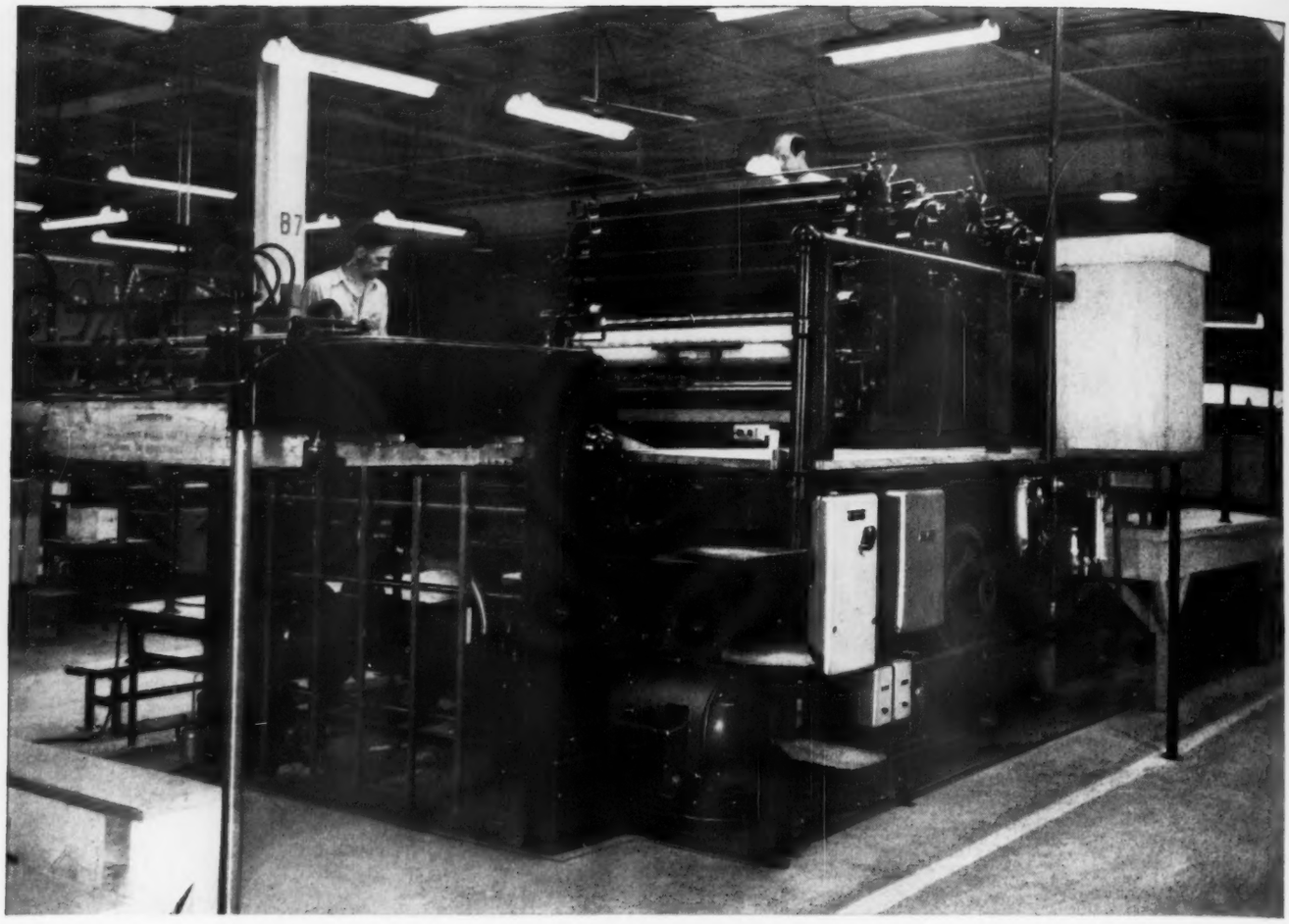
✓ Use of the Form File eliminates "traffic congestion" in composing room—makes chases and make-up trucks available for use at peak hours—increases efficiency—lowers costs.

✓ Form Files are in operation in progressive publishing plants, large and small. Owners are "sold" on their space-saving, time-saving, money-saving performance.

- WRITE TODAY FOR DETAILED INFORMATION!

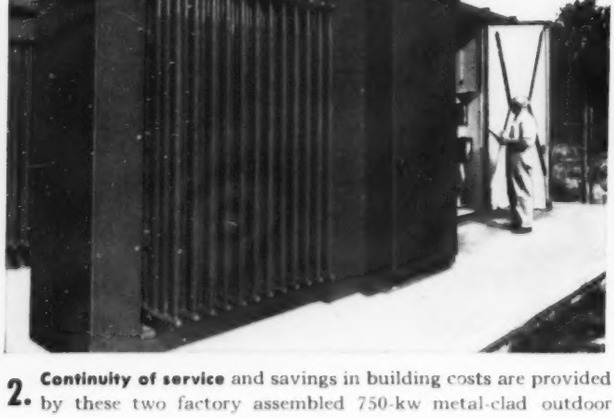
Sta-Hi Corporation

235 W. WASHINGTON BOULEVARD • BOX 152, WHITTIER, CALIFORNIA



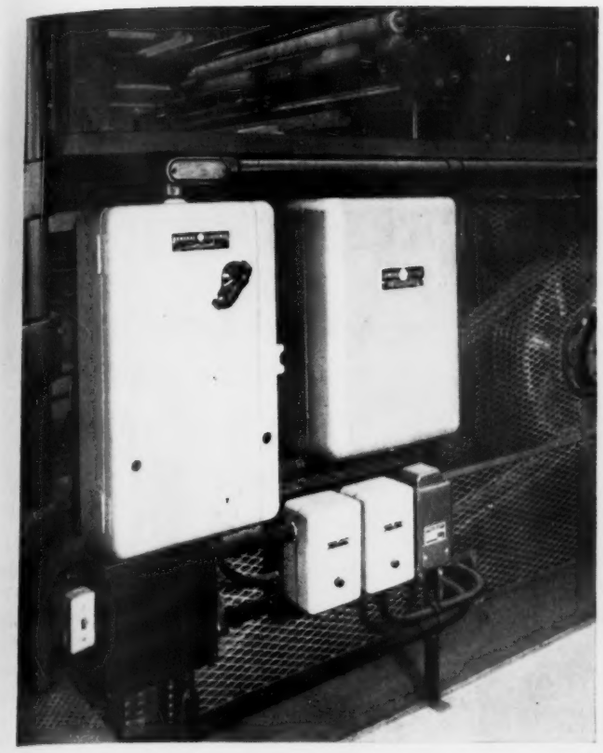
1. Completely press mounted this 25 hp G-E Adjustable Speed ACA press drive, one of 26 similar drives at Lord Baltimore, saves power and space, offers versatility of d-c power direct from a-c power on this Harris 258 (LTL), offset press. Drive consists of 25 hp ACA motor, press mounted resistorless control, auxiliary magnetic starters for feeder and delivery motors, and magnetic amplifier. Pilot motor (on top of ACA motor) provides fingertip preset speed adjustment at operator's stand.

LORD BALTIMORE PRESS: G-E POWERED

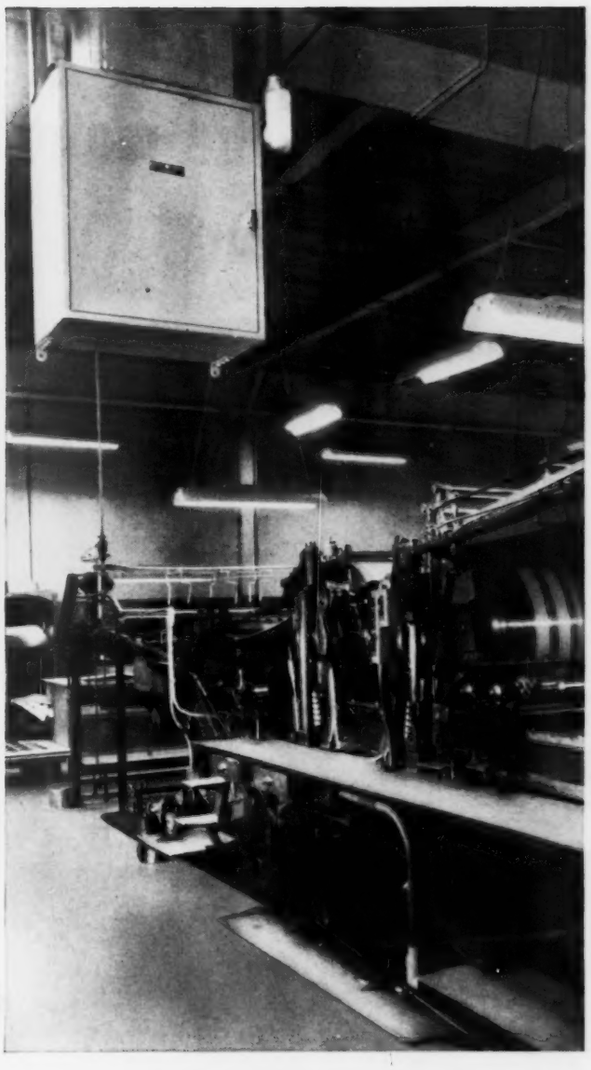


2. Continuity of service and savings in building costs are provided by these two factory assembled 750-kw metal-clad outdoor unit substations which transform 13.2-kv power supply to 440-volt for distribution in plant.

3. Production insurance, maximum protection for personnel, ease of maintenance, and instantaneous inspection are provided by this G-E Metal-clad switchgear which affords centralized protection of 440-volt power distributed to plant areas.



4. Amplistat Control (right panel) provides almost infinite preset speed control without tubes or moving parts. All controls for press are shown. Note absence of resistors making possible press mounting of control without drying out rolls.



5. This 30-year-old 2-color Miehle 5/0 flatbed was converted to a-c with addition of new G-E wound rotor motor drive. Note control (upper left) with resistors mounted on top to remove resistor heat from controller, thus reducing contact deterioration.

FOR QUALITY PRINTING AT TOP SPEED

Modern $2 million plant requires advanced electric system engineering

Modern plant construction at the Lord Baltimore Press presented several electrical problems: suspended roof construction saved floor space but eliminated columns near the presses on which to mount press control.

Also, to keep air conditioning costs down, variable speed press drives with minimum heat dissipation were needed, and to further magnify this problem, operators desired d-c performance from a-c power.

This is why Hugo Dalsheimer asked G.E. to investigate their needs early in planning. The solution: G-E ACA press drives—highly efficient because of resistorless speed control and easily press mounted due to small size and absence of resistor heat—on all presses that would accommodate them.

PRESS-MOUNTED DRIVES RUN DIRECT FROM A-C POWER

Operating direct from a-c power, Lord Baltimore's new compact, press-mounted ACA's permit the selection of maximum press speeds for each job with no undue spoilage or loss of quality. The operator achieves optimum production for each run because of wider speed ranges, essentially constant preset speeds despite load changes, and accurate speed adjustment.

MAKE STUDIES EARLY IN PLANNING

Printing plant power systems require investigation of many details. Take full advantage of G.E.'s extensive experience in your industry. Contact your G-E sales representative ***early in your planning.*** Meanwhile, send for Bulletin GEA-5568 "ACA Adjustable-Speed Press Drives." ***General Electric Company, Schenectady, N. Y.*** 653-19

GENERAL ELECTRIC

Here's why LINK-BELT SILENT CHAIN drives the majority of the country's high-speed, high-hp presses

A touch of the control button brings exact press speeds on this Walter-Scott five-unit press at the *New York Herald Tribune*. Two 100 hp. Link-Belt Silverstreak Silent Chain Drives have been in constant use since 1940.

New York Herald Tribune gets accurate printing at chain speeds up to 3664 fpm

This experience of the *New York Herald Tribune* is typical. In the 12 years they've used L-B Silverstreak Silent Chain Drives, they've had only efficient, trouble-free performance. It's little wonder that so many of the country's high-speed, high-production presses are driven through Link-Belt Silverstreak Silent Chain.

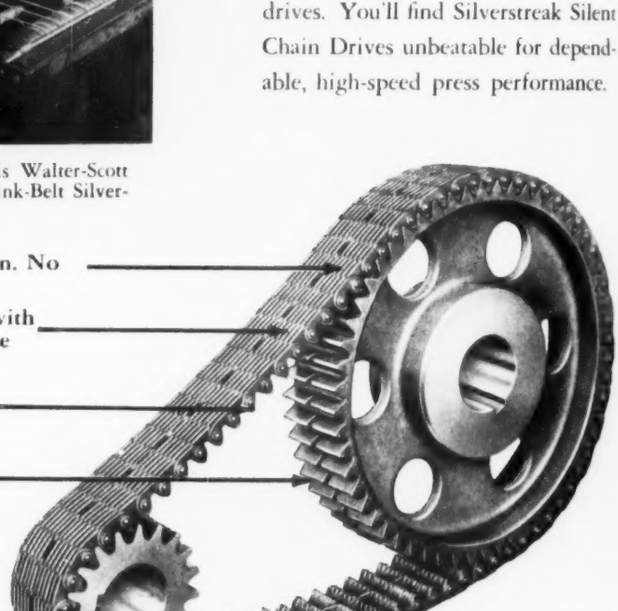
Regardless of your printing requirements—newspaper, magazine or rotogravure—check these time-proved drives. You'll find Silverstreak Silent Chain Drives unbeatable for dependable, high-speed press performance.

"Pull" is distributed equally across Silverstreak Chain. No possibility of uneven running—no slapping.

Narrow-width Silverstreak Silent Chain does the job with a *single strand*—eliminating dangers that come with use of multiple belts.

Husky Silverstreak *metal link* construction combines the ability to carry heavy overloads with the resilience that really absorbs shock.

Silverstreak Silent Chain doesn't rely on tension to get pulling power. Chain meshes with teeth—gives POSITIVE drive—no chance for slip.



LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

12,625

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices, Factory Branch Stores and Distributors in Principal Cities.

PRINTING EQUIPMENT *Engineer*

AN INDUSTRY-WIDE TECHNICAL PUBLICATION

Published especially for management, production and mechanical executives responsible for printing production and the specification of equipment and supplies used in the commercial, magazine, private plant and daily newspaper fields.

Volume 82 **Number 8**

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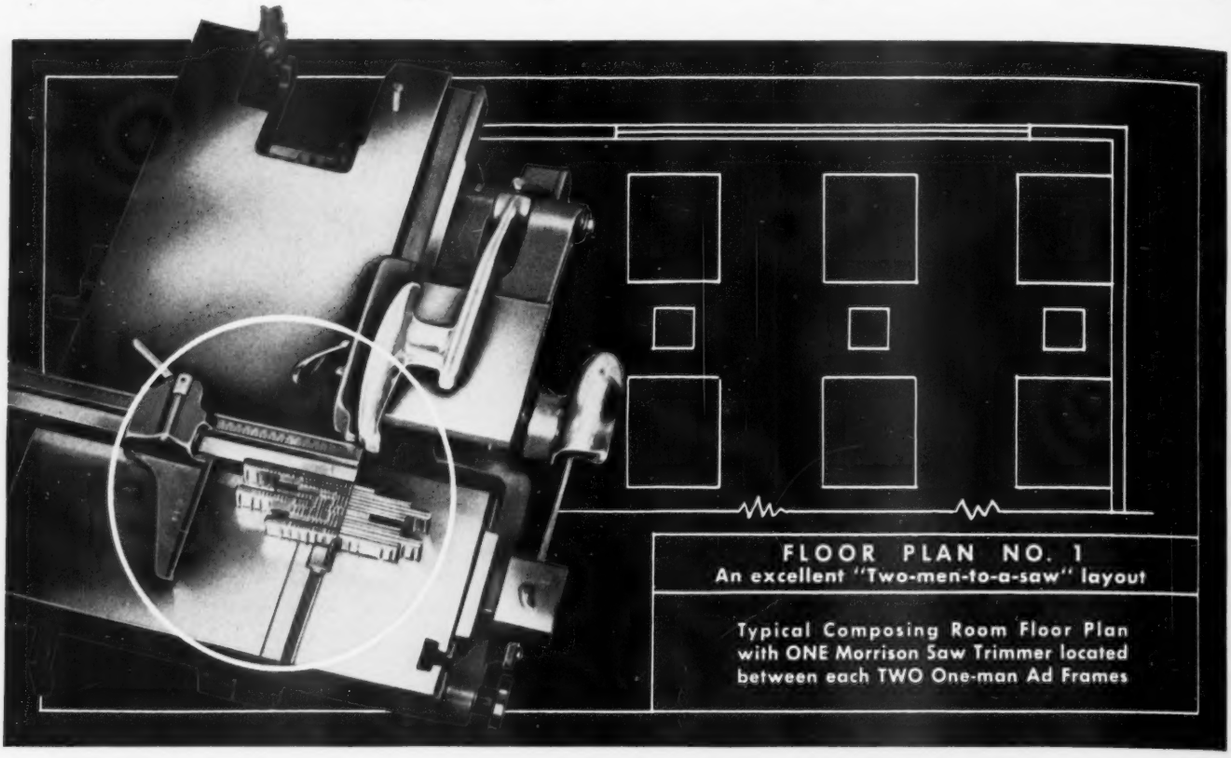
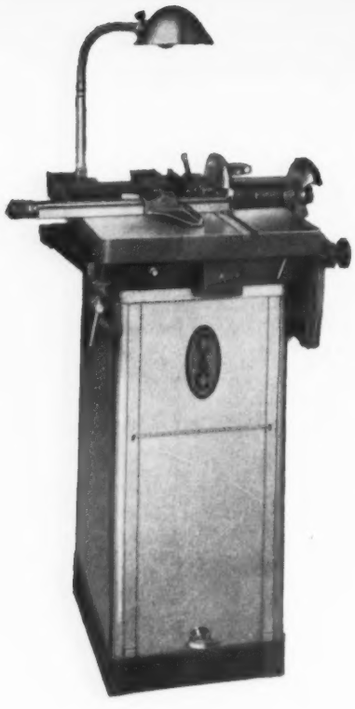
Composing Room Efficiency Centers on your SAW TRIMMER


FLOOR PLAN NO. 1
An excellent "Two-men-to-a-saw" layout
Typical Composing Room Floor Plan with ONE Morrison Saw Trimmer located between each TWO One-man Ad Frames



MORRISON SAW TRIMMER

"Behind the Gauge" Workholder Improves Safety and Work Accuracy

With the radical Morrison "Behind the Gauge" Workholder your work is easier to see and watch, closer to the operator for greater safety, accuracy and faster work. The pull of the saw blade holds the slugs more compactly, instead of fanning them or causing them to buckle and jump. It's a great improvement over conventional workholding methods.

This "Behind the Gauge" Workholder is one of many reasons why the Morrison Saw Trimmer is one of your most important time and labor savers in composing room operations. Others are proving it every day. There's an owner nearby; ask for his name so you can see and try it yourself. Or write for descriptive folder "Essential to Composing Room Economy."

Exclusive MORRISON Features:

- Miter gauge with *point* adjustment.
- Patented Universal Saw Blade, with saw grinding attachment.
- Right and left hand mitering, all miters face up.
- Miter and lineup gauge.
- Automatic index for plate cutting and trimming positions.
- Swing-out 135 Pica Extension Gauge.

Get Your Money's Worth in Saw Trimmers... **BUY A MORRISON**

Model 3-A Saw Trimmer

Handles amazing variety of work. Table, 30"x 18". Model 45 with 18"x 27" table "Pistol Grip" blade adjustment. Low cost Model "45 Special" for auxiliary use.

Symbol of Operating Economy

THE MORRISON COMPANY

PRECISION MACHINES FOR THE GRAPHIC ARTS INDUSTRY

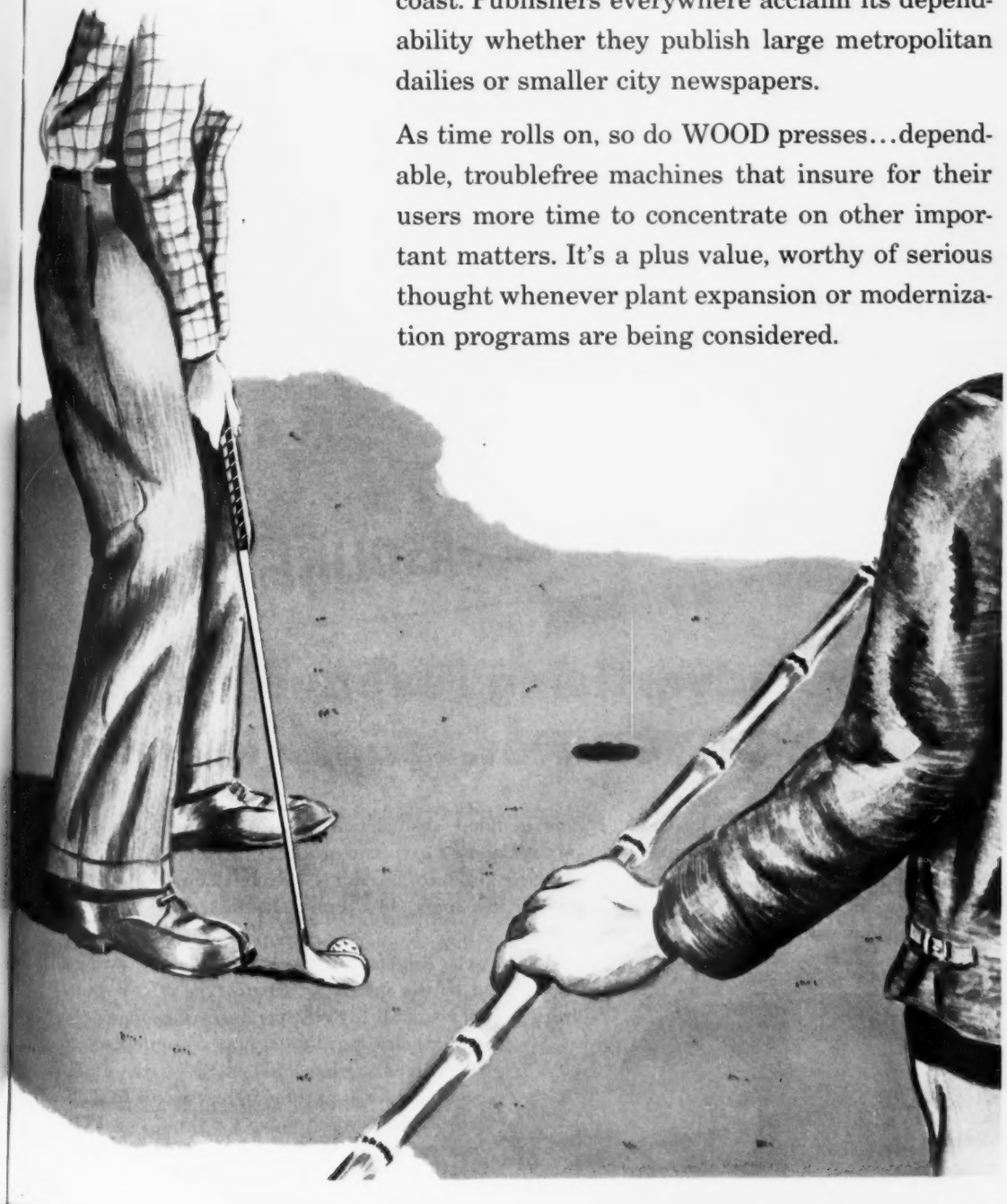
125 W. Melvina Street, Milwaukee 12, Wisconsin

MORE TIME TO CONCENTRATE

WOOD presses and pressroom equipment won't improve your golf but they will help you publish a better-looking newspaper and give you more time to concentrate on business problems other than overcoming mechanical failures that stymie production schedules.

WOOD newspaper machinery is standard equipment in leading newspaper plants from coast-to-coast. Publishers everywhere acclaim its dependability whether they publish large metropolitan dailies or smaller city newspapers.

As time rolls on, so do WOOD presses...dependable, troublefree machines that insure for their users more time to concentrate on other important matters. It's a plus value, worthy of serious thought whenever plant expansion or modernization programs are being considered.



SOME PROMINENT NEWSPAPER PLANTS USING WOOD PRESSES AND PRESSROOM EQUIPMENT

- New York Times
- St. Louis Post-Dispatch
- Cincinnati Times-Star
- St. Paul Dispatch and Pioneer Press
- Indianapolis Star and News
- Philadelphia Evening Bulletin
- Philadelphia Inquirer
- Boston Record
- Providence Journal and Bulletin
- Hartford Courant
- Newsday—Long Island
- Daytona Beach News-Journal
- Columbus Ohio Hilltop Record

SEND FOR LITERATURE
DESCRIBING **WOOD** *PRESSES,*
PRESSROOM AND STEREOTYPE EQUIPMENT

IF IT'S Wood IT'S GOOD

WOOD NEWSPAPER MACHINERY CORPORATION

PLAINFIELD, NEW JERSEY • SALES OFFICE: 501 FIFTH AVENUE, NEW YORK 17

THE DAYTON DAILY NEWS
How Miracle Anti-Rust Chemical RD-119 helps you get
MORE MILES for LESS MONEY
More Miles of Car Life—Less Money for Repairs!
SINCLAIR ANTI-RUST GASOLINE

Yes, and more advertising revenue with DAYCO Newspaper Rollers!

Newspapers earn the color premium oftener, increase advertising revenues . . . when Dayco Newspaper Rollers give the clean, sharp, full-impact effect of COLOR!

The ultra-smooth, mirror-like surface of a Dayco Roller produces clean impressions with clear type, sharp dots in finely shaded half-tones, and unusually strong solids. Dayton's exclusive processes of compounding and grinding produce amazingly precise diameters with no high or low spots. As a result, Daycos require minimum resetting.

With Dayco Rollers you can handle black-and-white, *or any* color, at top speeds . . . on any type of newspaper press. They'll stand the high temperatures of those speeds. And their rugged toughness assures extremely long-lived service.

There are big profits in newspaper COLOR advertising. Write today for proof that YOU can get those extra profits with Dayco Newspaper Rollers!

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Dayton Rubber
Since 1905
DAYTON RUBBER COMPANY, DAYTON 1, OHIO

Pioneers of Improvements for Better Printing . . .
Dayco Rollers, Blankets, Color Separators, Fountain Dividers . . . for Newspapers, Letterpress, Offset

Why we make a special bearing so costly that hardly anyone buys it

THIS is the most expensive bearing we make. It's the new Timken® "Double-Zero" bearing.

The "Double-Zero" is *twice* as accurate as the Timken "Zero" bearing—previously the most accurate Timken tapered roller bearing made. Achieving this super accuracy required new, specialized equipment, additional precision grinding operations and countless extra man-hours.

As a result, the cost of producing "Double-Zero" bearings is more than that for "Zero" bearings. Because of its high price, it is used by only a very few industries, in applications where extreme accuracy is vital.

But the *real* importance of the "Double-Zero" bearing goes far beyond its immediate use.

Experience gained in producing the "Double-Zero" bearing is showing the way to greater and greater precision in *all* Timken tapered roller bearings. And this increased precision will mean greater bearing capacities, permitting the use of smaller bearings at lower cost. Just as today's standard bearing was the super precision bearing of a few years ago, the new "Double-Zero" bearing of today may well become the standard Timken bearing of tomorrow. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

A PRECISION TIMKEN BEARING FOR EVERY REQUIREMENT			
CLASS	RUN-OUT	TYPES AVAILABLE	SIZE RANGE
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"0"	.000150"	All Types	Up to 12" O.D.
"3"	.000300"	All Types	Up to 12" O.D

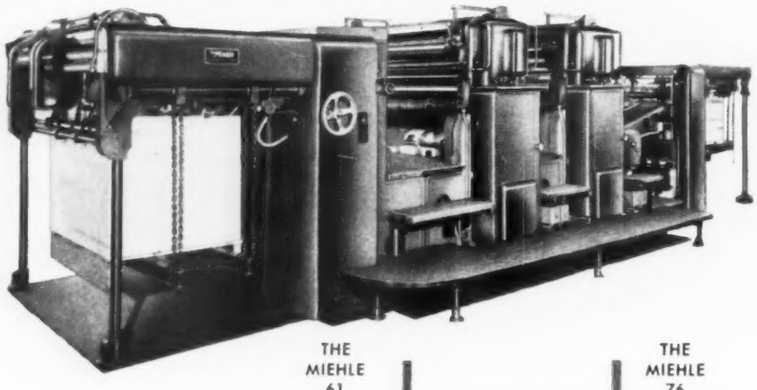
TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

NOT JUST A BALL ◯ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ↓ AND THRUST →◫← LOADS OR ANY COMBINATION ✳

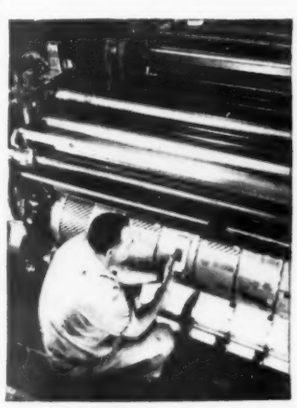
Miehle Rotary

1 COLOR • 2 COLOR • 3 COLOR • 4 COLOR • 5 COLOR

for high speed letterpress printing



	THE MIEHLE 61		THE MIEHLE 76
BUILT IN TWO SIZES	42" x 60"	maximum sheet size	52" x 76"
SINGLE AND MULTI-COLOR	6000	speeds up to	5500



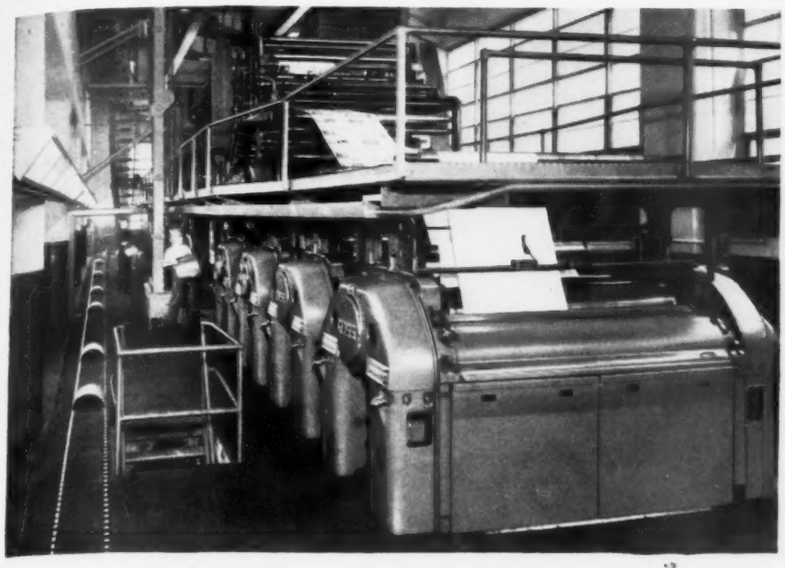
■ Progressive printers are installing Miehle Sheet Fed Rotaries — single colors to five colors — to reduce costs on a wide range of work and to open up new, profitable markets. They find that improved sheet handling, unit construction, separate impression cylinders, additional drying time between units and other Miehle features greatly increase production of high quality letterpress printing.

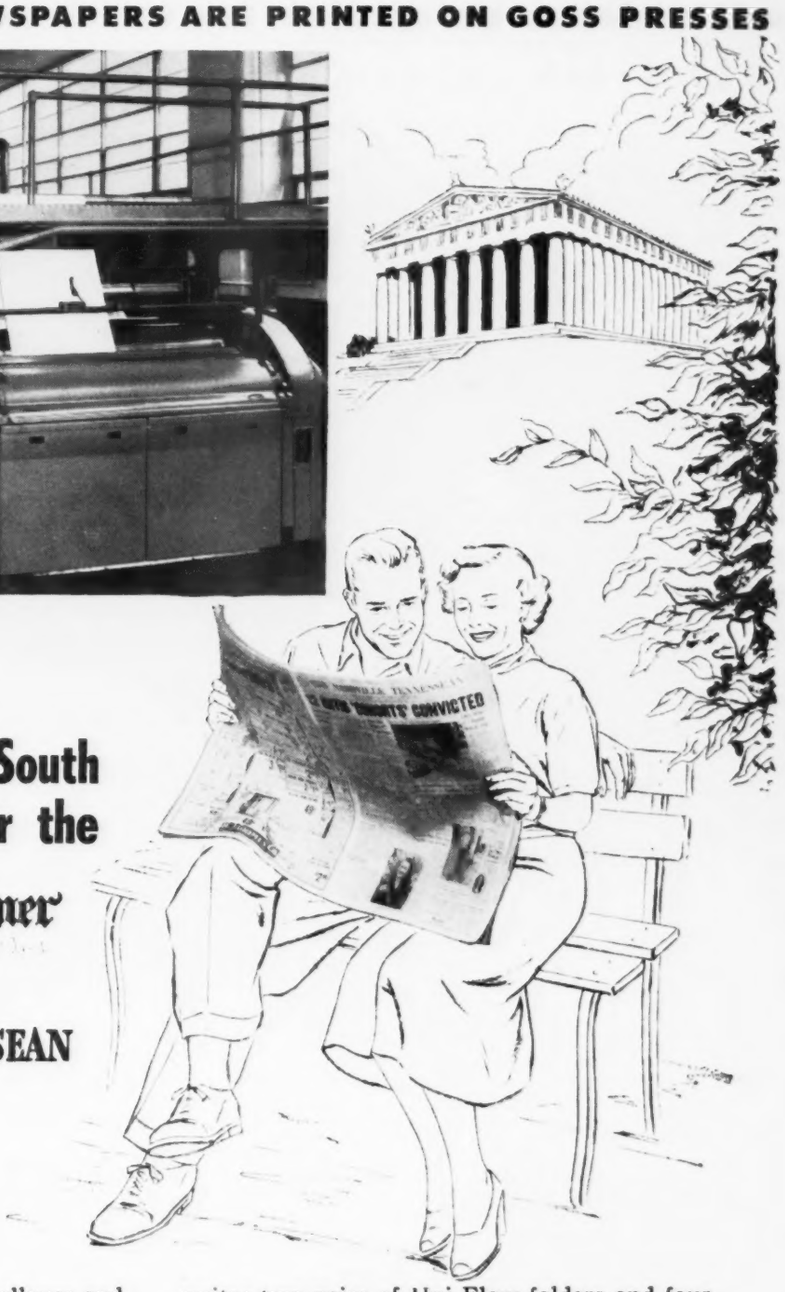
Makeready and plating are greatly simplified by individual impression cylinders for each color, de-clutchable plate cylinders, ample working space and complete accessibility.

Let us show you production figures and samples of jobs run on Miehle Rotaries.

MIEHLE PRINTING PRESS & MANUFACTURING COMPANY
Chicago 8, Illinois

AMERICA'S LEADING NEWSPAPERS ARE PRINTED ON GOSS PRESSES





In the Athens of the South it's Goss Headliners for the

Nashville Banner
Evening

THE NASHVILLE TENNESSEAN
Morning • Sunday

Nashville, Tennessee, with its ten colleges and universities is justly likened to ancient Athens as a seat of learning. But, unlike Athens, Nashville is also an important manufacturing and agricultural center.

Covering the news in so diversified a city calls for a versatile, fast moving publishing organization — and Nashville has it in the Nashville Banner and The Nashville Tennessean.

These outstanding newspapers—like so many others — are printed on Goss Presses. In this case the installation consists of 12 Headliner units; two pairs of Uni-Flow folders and four color cylinders. Plus-features, inherent in Goss Presses, include: full range color flexibility; Tension Plate Lock-up; continuous ink feed system; fingertip Colortrol; fully enclosed automatic lubrication; preloaded cylinder and form roller bearings; enclosed oil-tight folding motion; and streamlined styling.

THE GOSS PRINTING PRESS COMPANY
1535 S. Paulina St., Chicago 8, Illinois
Goss Printing Press Co. Ltd., Preston, England

it's **GOSS** *again*

To Publishers using upward of 10,000 gallons of ink a year:

If You're on Drums, Install a Tank

Why risk drum shortages when tank truck delivery will assure you a constant source of supply? Besides, there are savings.

Standard steel tanks are still readily available. Three to six weeks delivery is quoted on special equipment. After that, it's a routine installation job.

Defense Mobilization Director Charles E. Wilson says steel is short; predicts it will be shorter despite ever-increasing steel capacity. Steel drums' use for petroleum, chemicals, gunpowder and other needs may soon limit their availability.

Why not investigate a tank installation now? Huber will help you locate tanks and equipment. Your decision will help save steel. Write to Mr. Louis A. Lara, J. M. Huber Corporation, 620–62nd Street, Brooklyn 20, N. Y.

Huber delivery points are ideally located to serve you:

BOSTON	ATLANTA	EAST ST. LOUIS, ILL.
BAYONNE, N. J.	CHICAGO	NEW ORLEANS
WASHINGTON, D. C.	CLEVELAND	BORGER, TEXAS

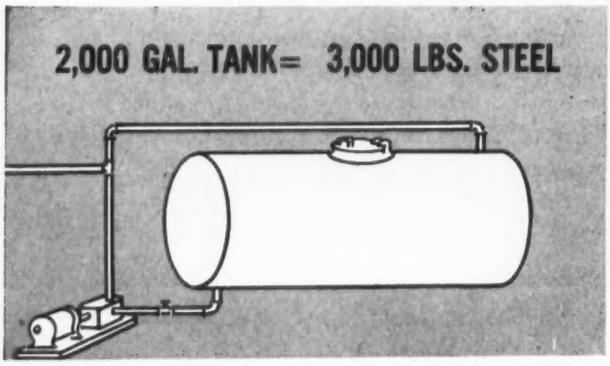
HUBER

J. M. HUBER CORPORATION
INK DIVISION

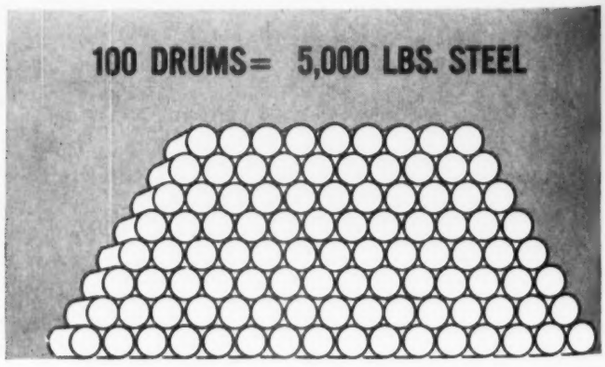
Sales Offices: **Boston · Brooklyn · Chicago · New York · East St. Louis, Ill.**

Plants: **Bayonne, N. J. · Borger, Texas · Boston, Mass. · Brooklyn, N. Y. · East St. Louis, Ill. · McCook, Ill.**

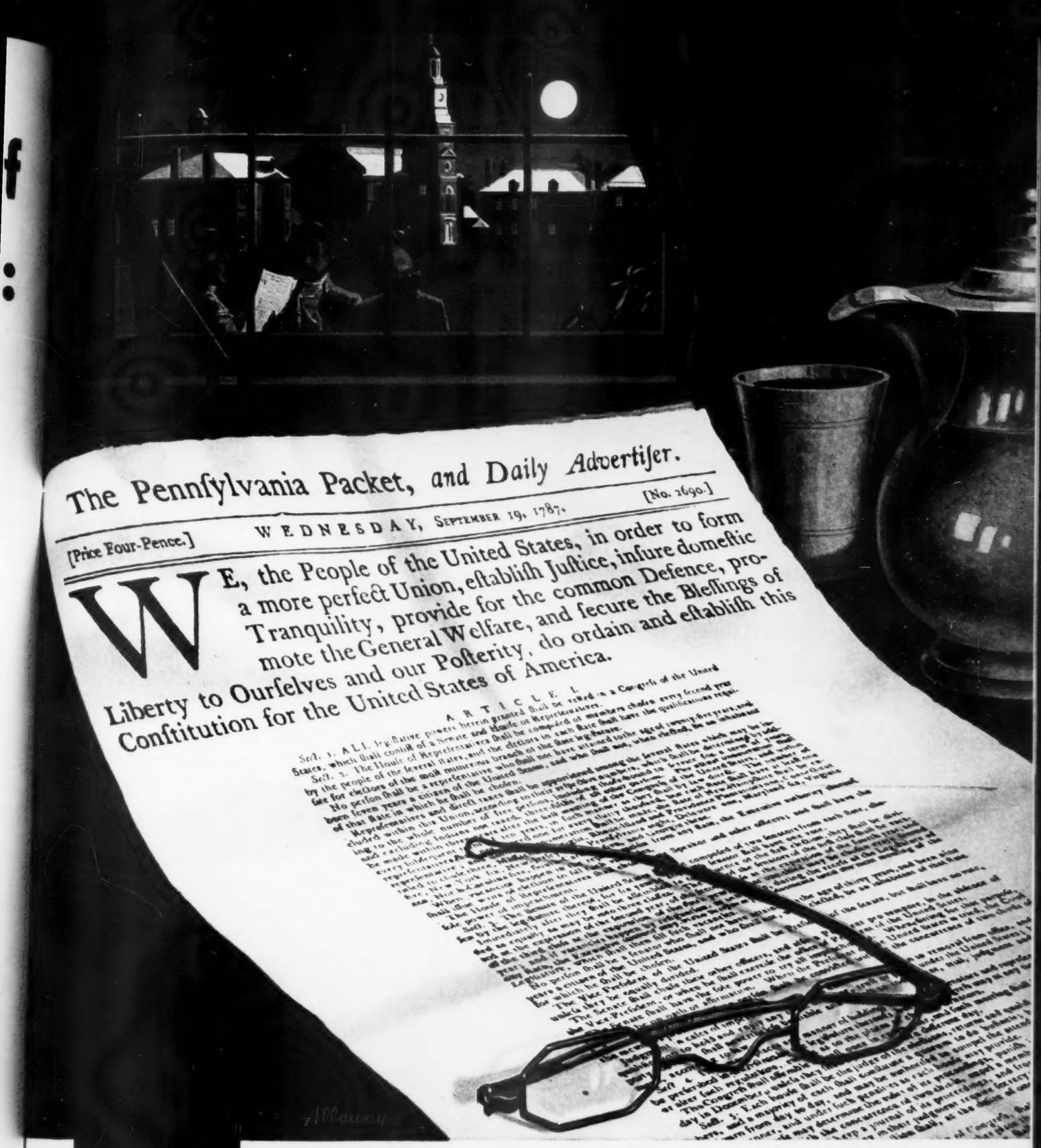
Huber Products in Use Since 1780



ONLY 3,000 LBS. OF STEEL are needed for a 2,000-gal. tank installation, including 500 ft. of pipe and the pump. Installation is good for at least 20 years.



5,000 LBS. OF STEEL—100 DRUMS—are required to maintain a 10,000-gal. ink consumer. With average loss of 20% a year, total steel investment must be replaced every 5 years.


The Pennſylvania Packet, and Daily Advertiſer.
[Price Four-Pence.] WEDNESDAY, SEPTEMBER 19, 1787. [No. 2690.]
WE, the People of the United States, in order to form a more perfect Union, eſtabliſh Juſtice, inſure domeſtic Tranquility, provide for the common Defence, promote the General Welfare, and ſecure the Bleſſings of Liberty to Ourſelves and our Poſterity, do ordain and eſtabliſh this Conſtitution for the United States of America.
ARTICLE I.

ONE OF A SERIES

. . of, by, and for the people

On September 19, 1787, the people of Philadelphia picked up their newspapers and read the *Constitution for the United States of America.*

It was the first time it had appeared in print, two days after its adoption. The paper was the *Pennsylvania Packet and Daily Advertiser*, America's first well-established daily newspaper.

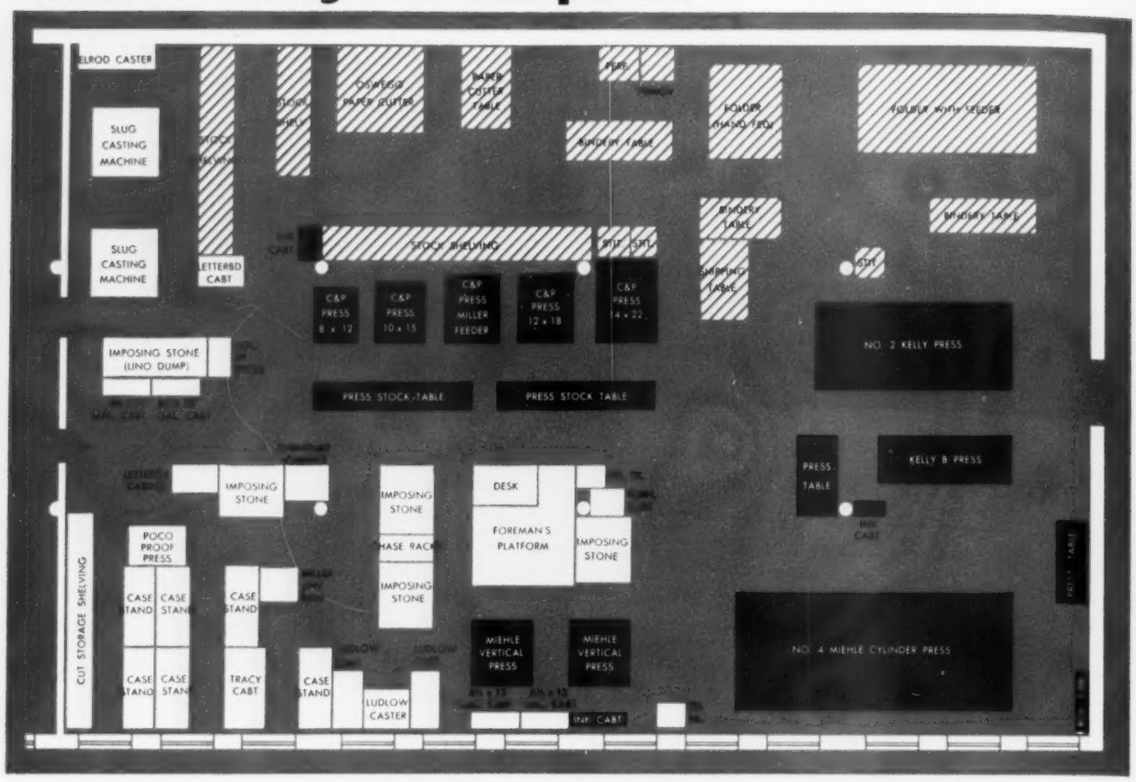
Two years later, on March 4, 1789, the Constitution, ratified by a majority of state conventions, went into effect as the basic principle of our present form of constitutional government.

Then, as now, the printed word formed an important means of communication and the eventual preservation of ideas. Today, ATF offers the widest line of processes for better, more profitable printing . . . Gravure . . . Letterpress . . . Offset.

Type faces shown are: Caslon 471, Caslon Antique and Lightline Title Gothic.

ATF AMERICAN TYPE FOUNDERS

1. What's wrong with this plant?



• *A complete new layout is needed*

This printing plant is typical of the job shop which has grown through the years. As new equipment became necessary, it was placed in available space, without much shifting of existing machinery. As a result, the layout does not provide for over-all efficiency of operation. Major pieces are awkwardly placed, floor space is wasted. Trucking aisles are inadequate. Consequently, the full potential of the plant, both production-wise and profit-wise, is not being realized.

ATF DIRECT-LINE LAYOUT

The key to printing plant efficiency

Routing work through your printing plant should be as simple as ABC. With direct-line layout, it is.

From office to composing room, through pressroom, bindery, to delivery, direct-line layout provides a continuous flow of work in process from one end of the plant to the finished product at the other end. Such direct-line layout minimizes back-tracking. It facilitates scheduling and control. It reduces stock-handling and conserves floor space for work in process. Bottlenecks are eliminated. Supervision is easier. All-in-all, direct-line layout adds up to lower costs of production and increased productive capacity. To you, it means maximum profits at minimum costs.

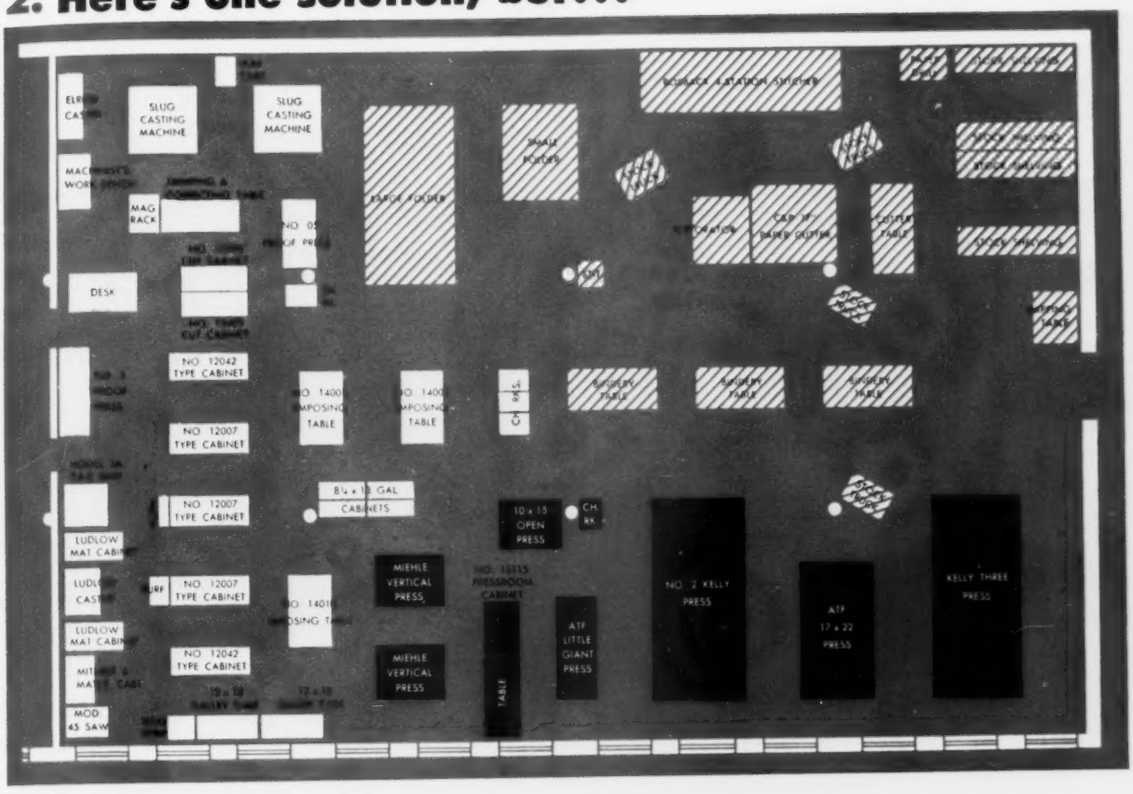
ATF provides free engineering layout service for purchasers of ATF printing presses and printing equipment. Write for our free booklet, "Direct-Line Layout." AMERICAN TYPE FOUNDERS, *a subsidiary of Daystrom, Inc.*, 200 Elmora Ave., Elizabeth, N. J.

ATF

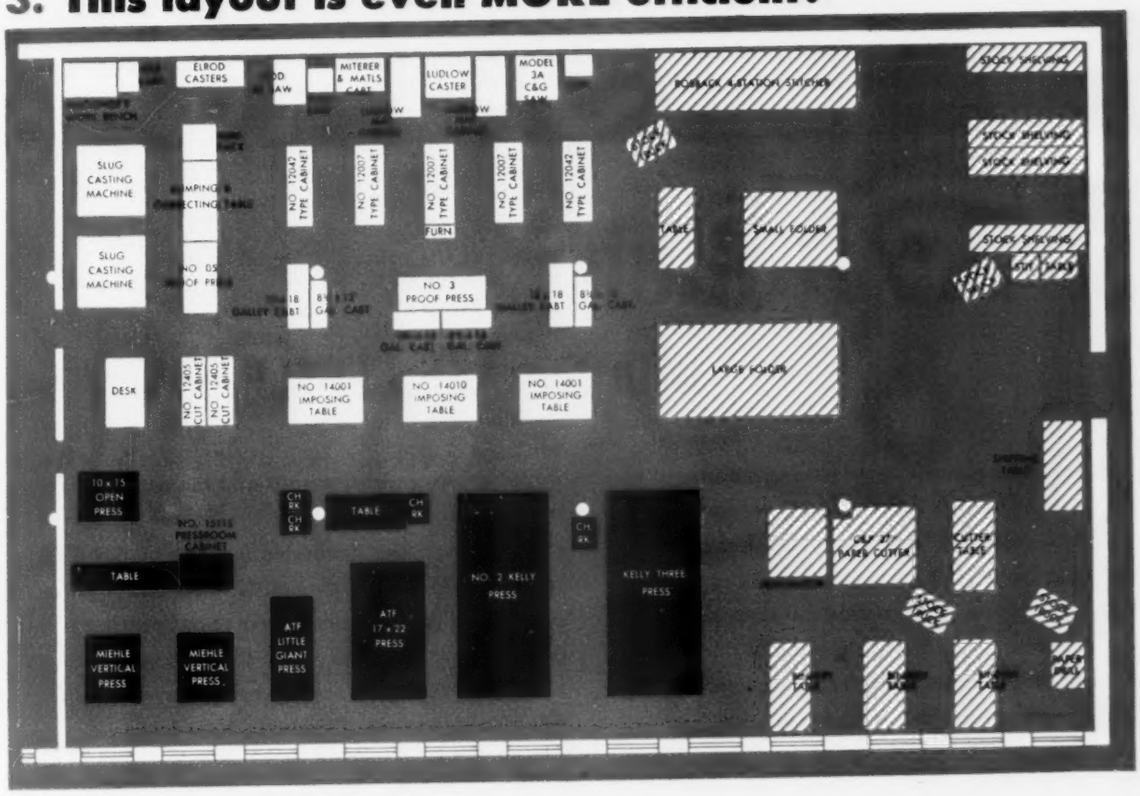
Better, more profitable printing from the widest line of processes

GRAVURE . . . LETTERPRESS . . . OFFSET

2. Here's one solution, but...



3. This layout is even MORE efficient!



ATF Plant Layout Engineering Service has been available for 39 years

Strike It Rich

with the ATF LITTLE GIANT 6

Cash in on the many money-making features of the ATF Little Giant 6. It's a gold-digger for profits.

For example, the ATF Little Giant 6 can print anything from 3¼" x 5½" in black and white to four-color process in its maximum sheet size, cruising at speeds up to 5,000 impressions per hour. It pays off for long or short runs. It can handle everything from onion skin to 4 ply card.

Fast get-away, easy set-up and makeready, easy operation, full form coverage by all three rollers are a few of the other profitable features of the ATF Little Giant 6, 12x18 automatic job cylinder press.

Ask your ATF representative about putting this gold-digging press to work for you. AMERICAN TYPE FOUNDERS, *a subsidiary of Daystrom, Inc.*, 200 Elmora Avenue, Elizabeth, New Jersey.

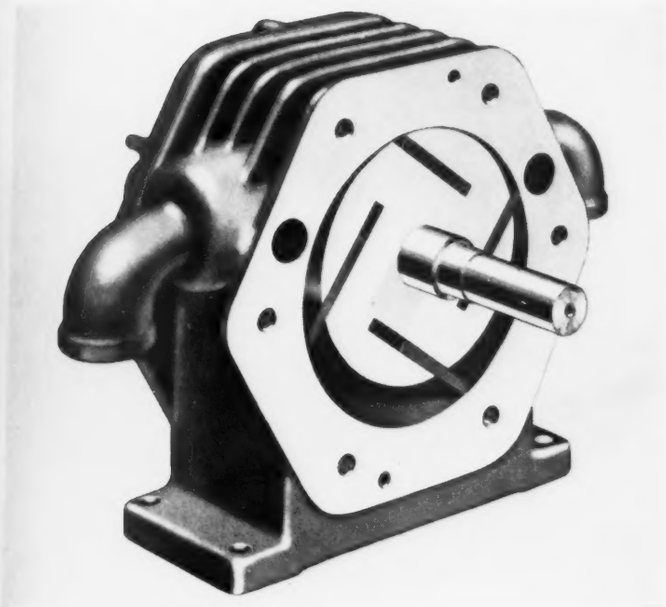
Type faces shown are: Contact Bold Condensed and Italic, Garamond Bold and Italic.

ATF

Better, More Profitable Printing from the Widest Line of Processes

GRAVURE... LETTERPRESS... OFFSET

For your Vacuum and Pressure Requirements



This

Oil-Free Pump

Never Requires Lubrication!

Here, at last, is a pump that's clean, efficient, never needs oiling, requires no attention . . . and delivers all the vacuum and all the blast you need.

With the Dexter-Conde DRI-AIR Pump, oil-streaking is done away with.

The VANES — of carbon-graphite alloy — operate with a minimum of friction, are long-lived and become increasingly efficient in service.

The PUMP is precision built, with close tolerances. Has no seals or gaskets to leak or blow. Runs cool—and is backed by Dexter engineering service.

Built in several sizes — to deliver what your machines require.

We will be glad to study your pump problem and make recommendations. Write for literature.

Dexter Folder Company *General Sales Offices*

330 West 42nd Street New York 36, N.Y.

We add a New Line

E.B.CO OFFSET PRESSES · E.B.CO OFFSET PRESSES · E.B.CO OFFSET PRESSES · E.B.CO OFFSET PRESSES · E.B.CO OFFSET PRESSES · E.B.CO OFFSET PRESSES

We are pleased to announce

the purchase of Electric Boat Company's Printing Machinery Division where E.B.CO Offset Presses have been manufactured since 1946.

The Miller Company has been in the graphic arts field since 1903. It has manufactured automatic cylinder letterpresses since 1926 and has gained a predominant position in that field. It will continue to guard this position and to further the use of letterpress printing. However, the purchase of the E.B.CO Offset Press facilities will enable it to serve, through sales and service, those of its customers who are developing combination letterpress and offset plants.

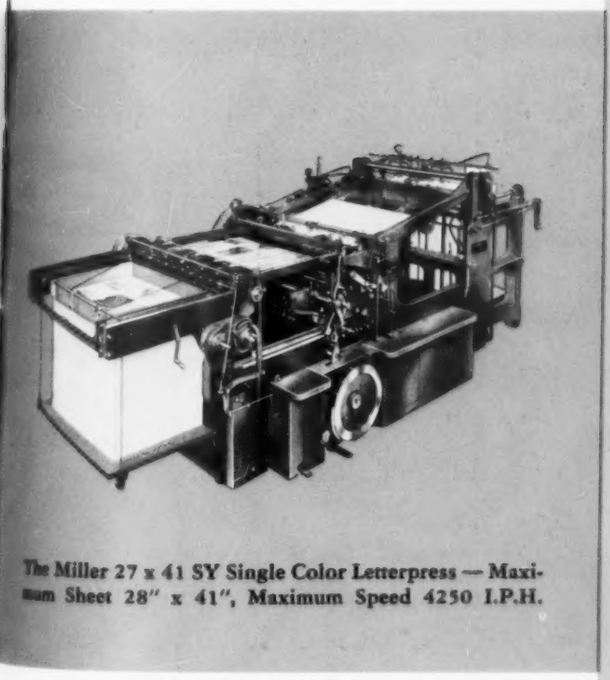
Miller Printing Machinery Co.

PITTSBURGH · PENNSYLVANIA

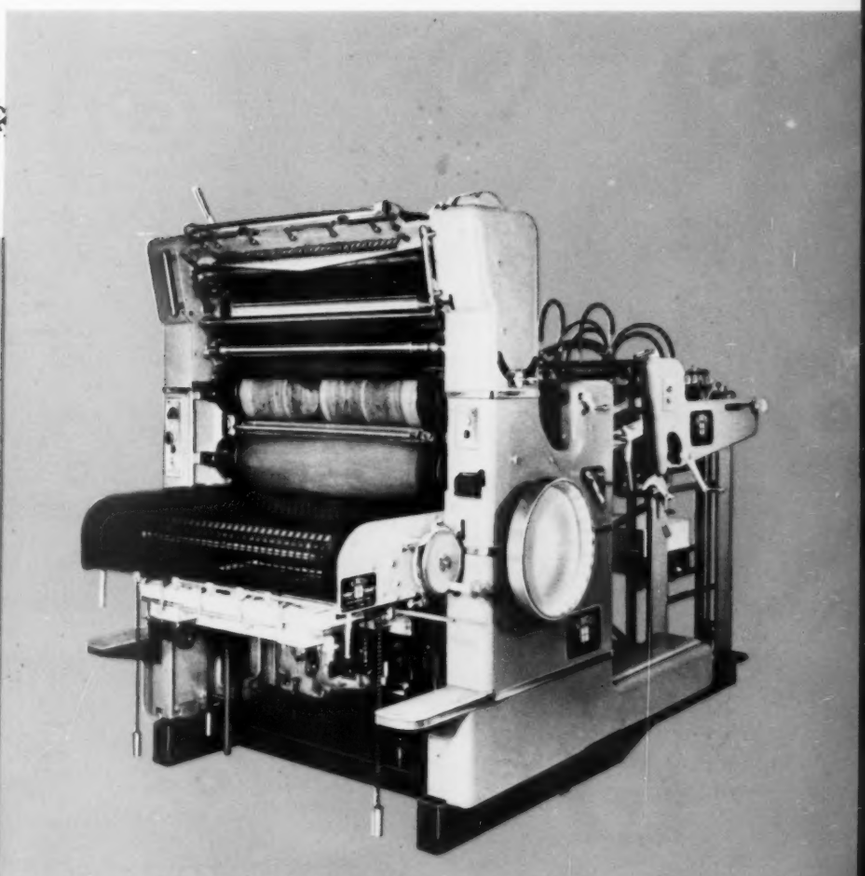
E.B.CO OFFSET PRESSES • E.B.CO OFFSET PRESSES • E.B.CO OFFSET

Sales, service and engineering

of Miller Letterpresses and E.B.CO Offset presses are now combined under one management. The present users of E.B.CO presses will be assured of the same type of prompt and efficient service that has been enjoyed by Miller press users over the years. The Miller Company will extend and develop the E.B.CO line of machines. Investigate the Miller and E.B.CO presses before you buy. Literature will be sent without obligation.



The Miller 27 x 41 SY Single Color Letterpress — Maximum Sheet 28" x 41", Maximum Speed 4250 I.P.H.



The E.B.CO 22 x 34 Single Color Offset Press — Maximum Sheet 23" x 36", Maximum Speed 6600 I.P.H.

HARRIS-SEYBOLD

for the man at the feeder . . . profit

More accurately than if he were personally feeding each sheet, this craftsman controls the register of his Harris press even at high speed. He gets the job underway quickly and runs with fewer stops. His production record is good. That's part of what we mean by a pressman's profit.

for the man in charge . . . profit

Harris equipment lightens the responsibilities and problems of the plant manager. He knows that it can produce top-quality work; that if the need ever arises, there are parts and service facilities readily available. That kind of dependability means a lot to his peace of mind.

for the man who buys printing . . . profit

Press features mean little to the printing buyer, but he *can* appreciate the "plus values" of various printing methods. For example, in offset lithography his dollar can buy more color, more illustrations, wider paper choice and greater quantity. He gets a better run for his money. That's profit.

for the man who reads and buys . . . profit

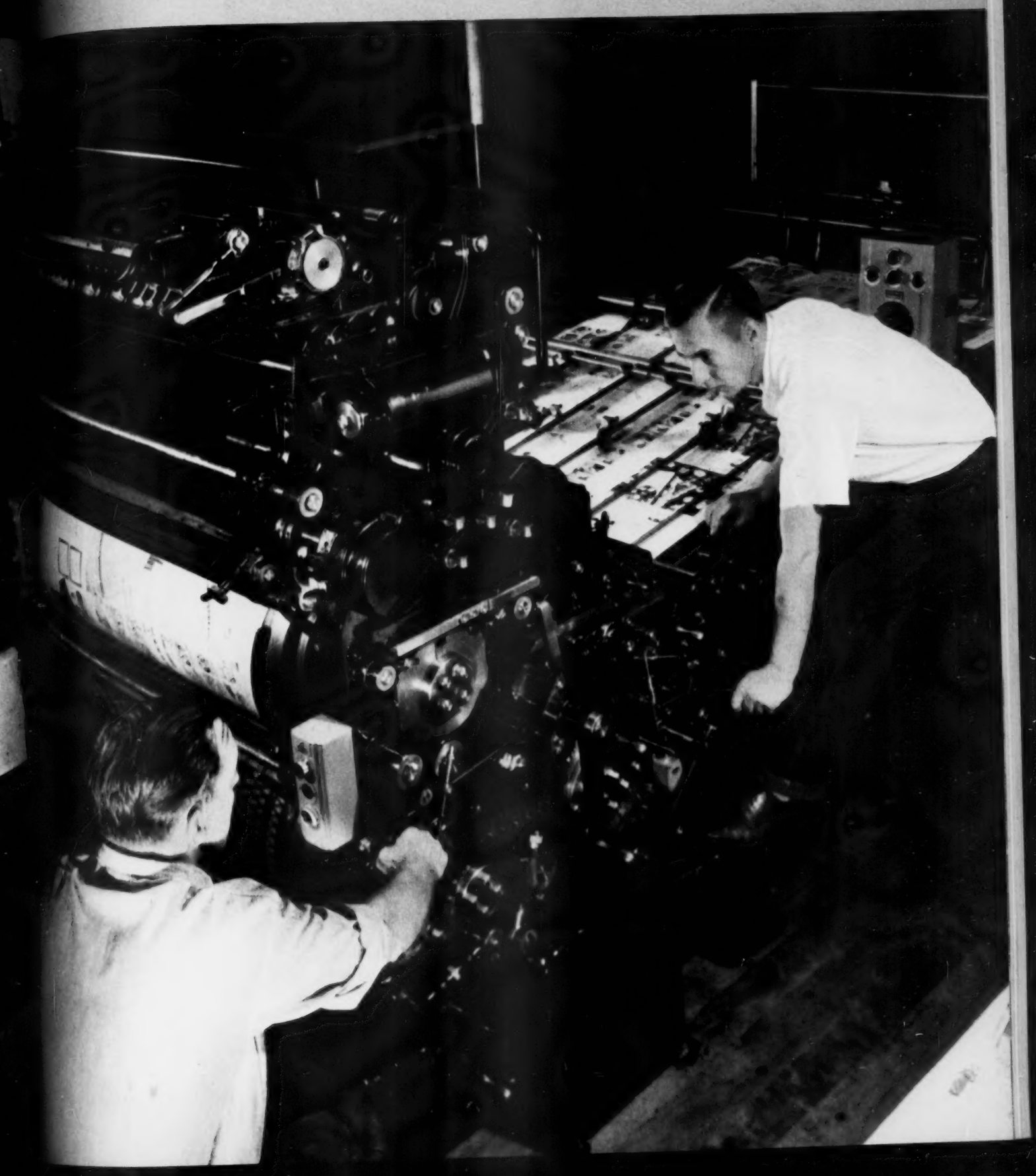
Few consumers know about printing methods, but every consumer has seen and read sales messages produced with Harris-Seybold equipment. From these messages he gets an idea, makes a purchase, and thousands like him do the same. This starts mass-buying, makes markets for mass-production, which makes lower prices possible. That's how high-speed printing profits him.

* * *

Some items which have proved profitable to the printing industry are: offset lithographic presses, rotary letterpresses, power paper cutters, paper drills, bindery equipment, litho-chemicals, and other fine graphic arts equipment. Consult Harris-Seybold in all principal cities, or at 4510 East 71st St., Cleveland 5, Ohio.

HARRIS MODEL 145 OFFSET PRESS AT
JAMES GRAY, INC., NEW YORK CITY
COLOR PHOTOGRAPH BY CORNELIUS

fine graphic arts equipment . . . for <u>everybody's</u> profit



"ORCHIDS" TO.....PRINTERS FINISHING.....BALTIMORE & WASHINGTON

Since 1922, in Baltimore, they have lived up to their slogan "A World of Service". In 1949 they installed their first 30x46 BAUMFOLDER and shortly thereafter wrote, —"set-up time reduced to a minimum and production exceeded our wildest dreams". In July 1951 they opened up a complete bindery in Washington, D. C., standardizing for proven "profit reasons", on BAUMFOLDERS of all sizes. The production and profit results of the ALL-BAUM Washington branch were so outstanding, they decided to make the parent plant in Baltimore ALL-BAUM (A PAIR of 30x46 and a pair of 25x38's, etc. . . . all told two carloads of Baumfolders installed over the week-end of March 22nd, replacing all other makes of both knife and buckle folders.

3 27 52: MR. MERRILL I. LEVIE, Vice President, writes:

Dear Mr. Baum: The impossible has been accomplished! In a single week-end you successfully converted our folding department into a Baum folding department. On Monday morning we were back into production. But it was a different kind of production—it was atomic speed plus precision.

Our outlook for the future is as bright as the new day sun, for now we know that with our new Baum equipment we will live up to our slogans: "A World of Service" and "Finishers of Fine Printing and Lithography."

RUSSELL ERNEST BAUM, Inc. 615 CHESTNUT ST. PHILADELPHIA 6, PA.

FOR
A
BETTER
LIGHT
IN
EVERY
WAY

—a light that is steadier, cleaner and more economical, use brighter

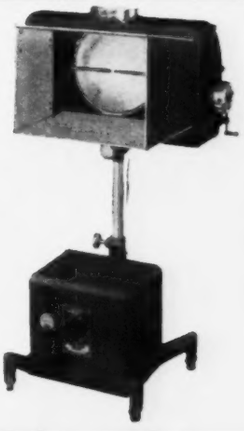
Strong

GRAFARC

Fully Automatic High Intensity ARC LAMPS

GRAFARC 95 AMPERE STANDARD PRINTING LAMP NO. 32000

with No. 33000 transformer and No. 34000-1 stand for use with vertical printing frames under 40″ x 50″.



GRAFARC 140 AMPERE PRINTING LAMP NO. 32500

with No. 33500 transformer and No. 3400-1 stand for use with vertical printing frames 40″ x 50″ and larger.

GRAFARC 95 AMPERE STANDARD CAMERA LAMP NO. 32002

for

PLATE MAKING

- Cut exposure time in half
- Assure sharper dots
- Eliminate dot undercutting by cross-over of reflected light rays

CAMERA GALLERY

- Uniform illumination on work of any size
- Extreme steadiness of light volume
- Constant color temperatures
- Eliminate illumination variable in accurate control of densities
- Power to punch through dense kodachromes

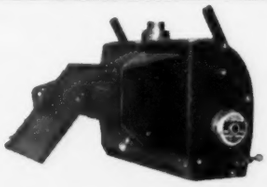
STEP AND REPEAT MACHINES

- Precise control of intensity for accurate repeats

NO OTHER LAMPS MEASURE UP TO THEM IN PERFORMANCE

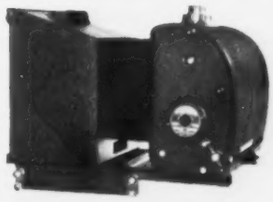
Approximately twice the light per arc watt results from the use of a silvered glass reflector, instead of a metal reflector. Adapters to fit most cameras and photo-composing machines. Present line supply wiring is usually adequate.

Write today for literature and prices.



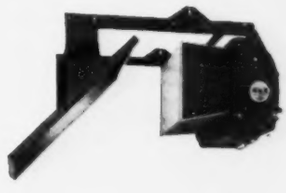
GRAFARC 95 AMPERE OVERHEAD PRINTING LAMP NO. 32221

for use with horizontal printing frames under 40″ x 50″. Burns in normal position thereby avoiding smoking of reflector and preventing ash from depositing on surfaces in the light path. A 45-degree angle mirror redirects the light downward to the work area.



GRAFARC 95 AMPERE PHOTO-COMPOSING LAMP NO. 32200

for Monotype Huebner MH photo-composing machines. Assures precise control of intensity for accurate repeats.



GRAFARC 140 AMPERE OVERHEAD PRINTING LAMP NO. 32520

for use with horizontal printing frames 40″ x 50″ and larger.

STRONG ELECTRIC CORP. 307 CITY PARK AVENUE • TOLEDO 2, OHIO

THE CUTLER-HAMMER

unit type newspaper press drives–
SIMPLE, FLEXIBLE, DEPENDABLE

In the Cutler-Hammer Control System for unit drives, each press unit with its own motor has its own motor control. It is a simple matter to cut press units in and out. Troubles such as changing load adjusting resistor switches, equalizing load among motors, circulating currents and excessive current peaks are at an end.

Each unit of Cutler-Hammer Motor Control is built up of simple, familiar, rugged industrial type control components. The kind any electrical man understands and can service. All control equipment can be installed in a separate room. Installation is simple and economical.

The Cutler-Hammer System utilizes simple, sturdy wound rotor a.c. unit motors. . . the dependable type with ample overload capacity for operating press at full speed in event of a motor failure. Also ample capacity for driving additional color decks. These motors are easily installed, aligned and serviced.

A gearhead motor performs inching and threading. Unit driving motors therefore are not energized during these operations.

A Cutler-Hammer cam drum accelerating device with 82 speed points accelerates motors and press units automatically and smoothly to any operating speed.

Dynamic braking eliminates the usual motor with built-in brakes. These are some of the features that recommend the Cutler-Hammer Unit Type Control System to any executive looking for maximum production at minimum cost and trouble. CUTLER-HAMMER, Inc., 146 St. Paul Ave., Milwaukee 1, Wis.

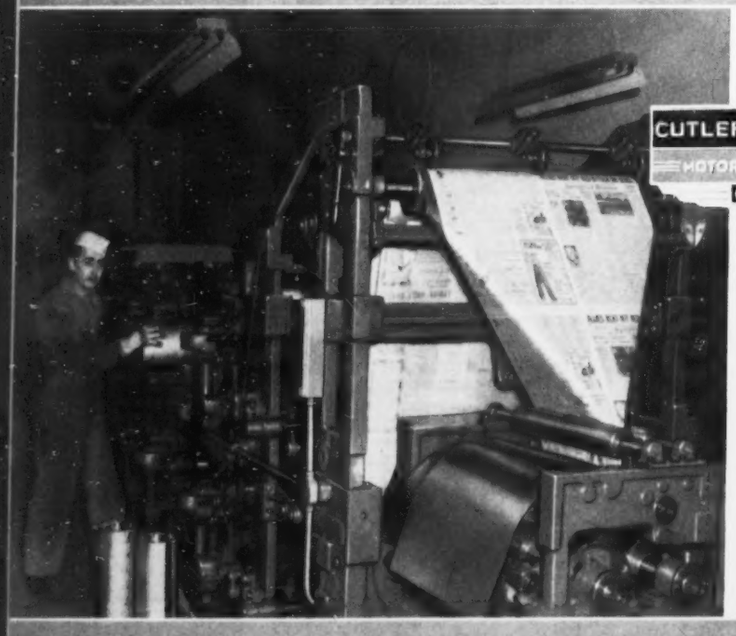
Cutler-Hammer Cylinder Brakes

Stop presses safely in approximately 3 seconds, completely relieving gearing of excessive forces and harmful shocks. Each brake individually adjustable yet automatically coordinated with other brakes.

CUTLER-HAMMER
MOTOR CONTROL
C-H

Cutler-Hammer Newspaper Conveyors

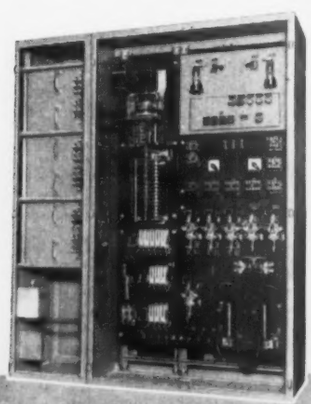
Used in practically every conveyor-equipped plant in North America. Standard Duty handles up to pages at any speed up to 60,000 I.P.H. Duty handles up to 96 pages at any speed to 60,000 I.P.H.



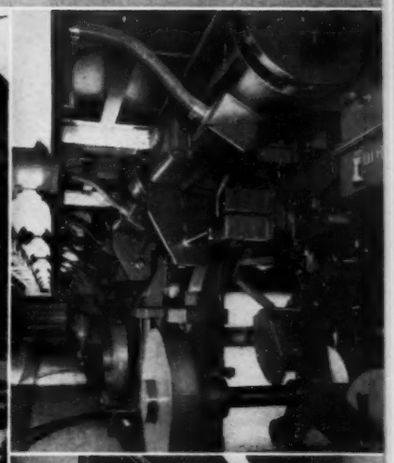
Cutler-Hammer Electronic Control for single motor drive on Goss Dek-A-Tube press in plant of

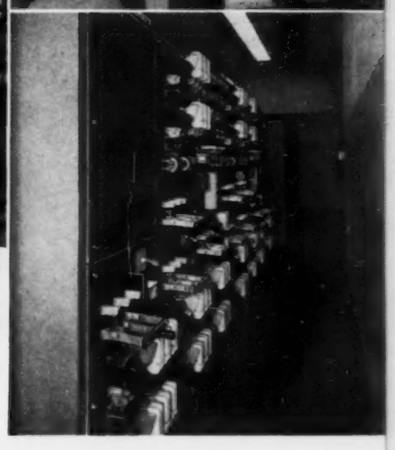
MADISONVILLE, KY., MESSENGER

"The whole setup is running smoothly, and we are looking forward to many years of satisfactory operation," says Edgar Arnold Jr., Assistant Editor.



ERCONTROL SYSTEM for



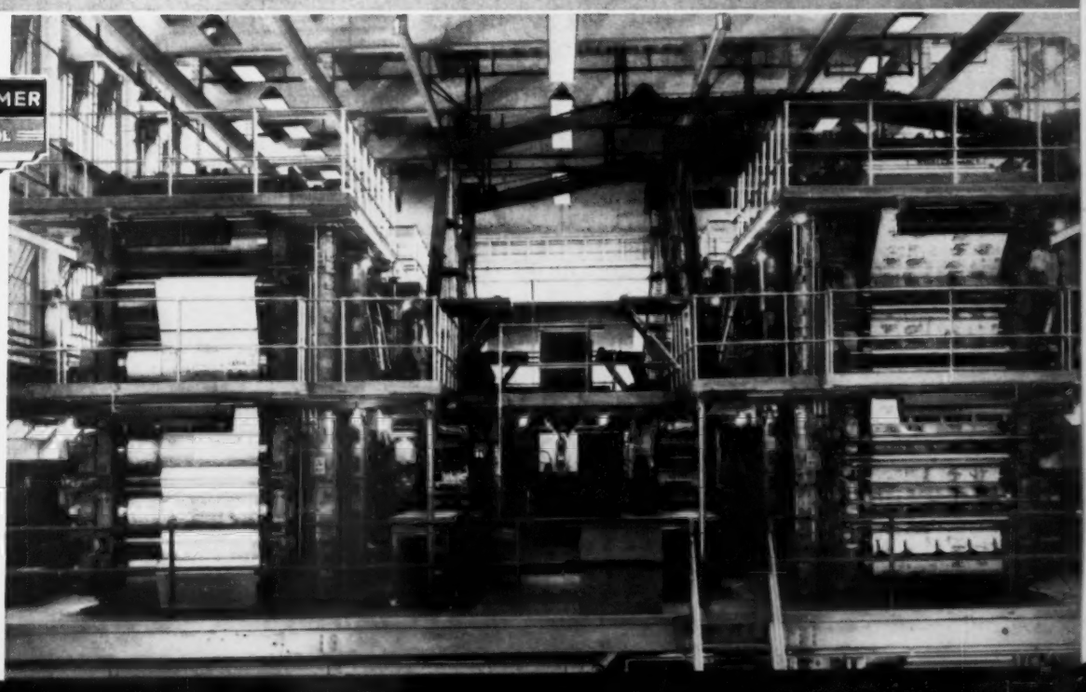


Cutler-Hammer Control System for Unit Drives

WILKES-BARRE, PA., RECORD, TIMES-LEADER, NEWS

This eight-unit two folder Hoe color convertible newspaper press at left, is equipped with unit drive and Cutler-Hammer unit type control. Above, the C-H Control installed in separate room, and a close-up of a drive unit.

CUTLER-HAMMER
MOTOR CONTROL
C-H



Cutler-Hammer Control for
2 Motor Drives on

MULTI-MILLION RUN HEARST
4-color Weeklies

"Running very satisfactorily" are these two 24-cylinder color presses equipped with Cutler-Hammer Controlled Drives in the Color Plant of the American Weekly at San Francisco. In addition there are four 24-cylinder presses identical with the above, in the American Weekly plant in Chicago. Approximately 10 Million copies of the American Weekly and 8½ Million copies of the Comic Puck Weekly are printed each week.

Uncle Mat Says...

6 SERVICE BRANCHES
31 FIELD CREWS TO
SERVE YOU DAY AND NIGHT
COAST-TO-COAST AND CANADA

MATRIX

CONTRAST SERVICE

prevents type slips like this . .

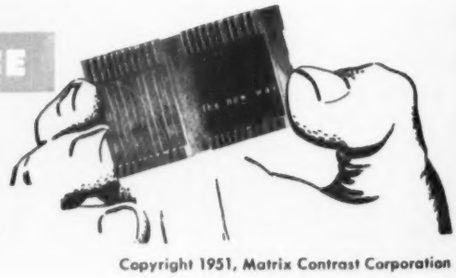
he had the privilege also of viewing a number of rare Egyptian Tummies M

IT HAS taken 27 years experience to give you the type of dependable service rendered by Matrix. Here, you gain every advantage of modern equipment, intelligent service crews, plus a proven, troublefree process.

● Black and White or Colors are applied to all your matrices, old and new, at a nominal yearly service charge in our plants and by trained service crews from coast-to-coast and Canada. Our nearest service branch will give you "reasons why" you should use the time-tested Matrix Method on your matrices.
Do it today!

MATRIX CONTRAST SERVICE

MATRIX CONTRAST CORPORATION
154 West 14th Street, New York 11, N. Y.
326 W. Madison Street, Chicago 6, Ill.
1105 Trenton Street, Los Angeles 15, Calif.
European Agents: Funditor, Ltd., 3 Woodbridge Street, Clerkenwell Green, London, E. C. 1.



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PRINTING
EQUIPMENT
Engineer
May 1952

It always pays to plan

THE word *Planning* (referring to the printing plant) like many another word that has found its way into the common vocabulary, means many things to many people. Some of its connotations are pleasant and constructive; others ominous and filled with foreboding.

The word *Planning* is often used loosely, and without much appreciation of its real meaning. In this respect it sometimes appears to have something in common with that well known definition of word thinking "Arranging and rearranging one's prejudices." Many a man who says that he *plans* to do something doesn't mean that at all. He may, more or less consciously, have set his heart upon some objective which he vaguely hopes to attain, such as owning a Cadillac car, marrying the third blond from the left in the front row, becoming a millionaire, or some other such pursuit, but the probability is strong that, so far as having worked out a thoughtful plan of procedure is concerned, he's just being wishful.

One of our modern dictionaries defines *planning* as a "formulated method of doing something", of "thinking out acts and purposes beforehand." As related to the use of the word, as we propose to consider it here, both of these definitions are applicable and acceptable. The man who undertakes to accomplish a desired result without having a formulated a method of reaching his goal, or without thinking out his acts and purposes beforehand, may well find himself in his own way or working at cross purposes with himself.

So much for *planning* in the abstract. Our concrete interest is in its application to the printer and publisher for never in the history of the Graphic Arts industries has the need for intelligent and continuous planning been greater. Under the existing war economy—a business climate that may well be normal for the remainder of the lives of many of us—survival and any appreciable measure of prosperity leaves no choice but to make the best possible use of existing production facilities, and to plan all expansions and replacements in the most economical and efficient manner possible. With production costs at today's levels, and trending still upward, no one can hope to qualify as a prophet of profit whose operations are not planned for the greatest possibly economy of time and energy.

The printer or publisher doesn't live who has not or will not at some time in his career face the necessity of making plant changes. Such changes may be minor ones, such as the installation of another type cabinet or a new metal saw. On the other hand, they may be extensive and radical changes, even so radical as the construction of a new building. In neither event should they be made without benefit of careful and thoughtful planning. The industry abounds in examples of improvements made on the basis of expediency rather than of a well thought out program. One such improvisation can lead to another an, eventually, to chaos. Printers and publishers are endowed with most of the common human attributes, including a disposition to follow lines of minimum resistance. It is, in consequence, easy to locate the new type cabinet, or the new saw, in the first open spot that can be found in the plant, maybe just inside the door. It may not be the location best suited to its most efficient use, but it does have the virtue of avoiding the relocation of possibly a half dozen other pieces of equipment. So, as times goes on, and one piece of production equipment after another is added to the plant, much of the improvement which the new facilities could have made is lost because expediency rather than careful planning dictated their placement. To repeat a truism which has appeared in these pages frequently enough to approach the bromidic, every plant improvement that is made, whatever its magnitude, should first be thought out and planned so that it fits soundly and logically, not only in the immediate picture but also into whatever future pattern can reasonably be anticipated. That statement regarding the future does not suggest the need for a swami or soothsayer to pierce the veil which separates the present from the future, for no one is better equipped to anticipate the future prospects of a business than the man who is responsible for its past. Neither does it imply that a plan, no matter how carefully prepared, can be carried through to completion without change or deviation. That hasn't happened yet, and if it ever does—just once—future history should record not seven but eight wonders of the world. Accepting it as factual that changes in any plan are inevitable, it is still far better to have a plan to change *from* than to have no plan at all.

At the seventh annual Great Lakes Newspaper Mechanical Conference, Detroit in January, the necessity for curbing the rise in production costs was accented by the mechanical executives participa-

ting. Discussion leaders called attention to the numerous economic casualties which have occured during the past year. These included not only those newspapers whose production costs had so far exceeded income that financial collapse was inevitable, but also those who, while still financially sound, could read in the shrinking margin between cost and income a similar fate if they did not combine their resources with others. Many factors are involved in these casualties and forced mergers. Some of them, such as the rising cost of newsprint and other production materials, increased labor rates, low labor output etc., are not directly within the scope of this discussion. But, to whatever extent uneconomic planning contributed to inefficient and costly production we are directly concerned. And, while the foregoing observations concern only one branch of the Graphic Arts industries, newspaper production, they can, with equal force be applied to any other branch. In no branch of industry, Graphic Arts or otherwise, can waste and inefficiency be condoned if survival, not to mention prosperity, is expected, and each passing year deepens our conviction that not even governments are immune to the ravages of this pair of destroyers. Planning, in its broadest sense, affords the only practical way to better conditions.

Planning, intelligently and continuously done, contributes much toward the elimination of waste—waste of space, of time, waste of energy. All that it does toward the elimination of waste conbributes, obviously, toward the increase of efficiency.

When we say that planning should be done *continuously*, we mean just that. Whether your plant be a brand new one, or one that has been in process of growth and development for years, continuous planning will help to keep it at peak performance. Many industrialists maintain a continuous planning department whose sole business is to study operations and space use. Their work might well be called a perpetual inventory of space use. Not all, perhaps not many printers or publishers would find it practicable to set up a separate department for such a purpose, but many could well afford to back away from the operation occasionally and take a bird's eye view of what is going on. Working under the pressure which most of them experience, it becomes all too easy to reach the state where they "can't see the woods for the trees." Under such conditions expediency, rather than long range consideration, too readily becomes the directing force.

While there is unquestionably a time and place for professional planning and technical assistance in working out production problems, particularly where they also involve buildings and construction, the thought we especially wish this discussion to convey is that a tremendous amount of productive planning can be done by any printer or publisher, large or small, if he will convince himself of its importance and then take the necessary time to do it. In fact, he, better than anyone else, knows where he came from and where he wishes to go.

Much has appeared in these pages from time to time on the technical aspects of planning, some of it so recently that it scarcely bears repeating. In several of the Plant Planning Sections of this magazine, as well as in other issues, articles have appeared which discussed in detail plant planning procedure, the use of cardboard templates, work flow, and other phases of planning. The prime objective of this discussion is the development of an appreciation of the need for planning—continuous planning—as a means of helping to meet the demands and limitations of an economic situation which may be with us for quite a while.

Printers and publishers, if they are to operate at all, must do so under many conditions which are fixed, insofar as lies in their power to change, and that brings to mind a statement made by Leslie Griner, Production Mgr. of the Detroit *News* at the newspaper mechanical conference to which earlier reference was made. Said he, "We are confronted with many conditions which we cannot change. The cost of newsprint and other supplies, wage scales and the like are fixed quantities which we can only accept. The only things we can change is *ourselves*, and our attitude toward the job we have to do.'

Projected Press To Print as a Perfector at Higher Speeds

A WORKING laboratory model of a standard two-color rotary printing press which can be operated at higher speeds as a perfecting press, was exhibited and discussed by L. W. Claybourn before the March meeting of the Club of Printing House Craftsmen of New York. Mr. Claybourn is founder of L. W. Claybourn, Inc. His son, Clayton, is associated with him in the firm's consulting engineering activities for printers, photoengravers and electrotypers in Chicago. Mr. Claybourn discussed, through operation of the working models, the new kind of sheet-feeding mechanism for positively registering a sheet at higher speeds together with other features. Through these devices the press is converted into a perfecting machine which prints, as stated previously, at higher speeds on both sides of the sheet once through the press.

The press model consisted of two printing units—one for each side of the sheet, which will print two sides of the sheet once through the press. Sheets are fed to the press units by two alternately operating feeder mechanisms. This permits comparatively slow feeding action which in turn permits exact guide and register control with a twice-as-fast printing impression speed. To illustrate, it was pointed out that if each feeder should operate at 4000 sheets per hr., the speed of each press unit would be 8000 per hr. The sheets are fed to the first press unit and are then carried overhead through driers, after which they are fed to the second unit for printing the other side of the sheet; the sheet is then conveyed through the drier mechanism and is passed to the delivery.

The new feeding mechanism is based on a breather method in which each sheet is picked up gently, brought to a split-second stop for register control and is then picked up by the twice-accelerated speed of the printing unit.

No further details are available at the moment.

One of Claybourn's pertinent observations was that some printers hinder the operation of an expensive and intricate mechanism such as a printing press by cluttering it up with haphazard materials and methods such as cuts carelessly blocked, forms that require hours of makeready, inefficient handling of paper, ink and register control.

Hewson Opens Branch

The John Hewson Co. has announced the opening of its Philadelphia offices located in the National Bank Bldg., Ambler, Pa. Address of the new office is P. O. Box 163 and telephone number is Ambler 2220. At the same time, the company announced that Frederic T. Hults has been appointed District Mgr. for the Tri-State area comprised of Eastern Pennsylvania, Delaware and Southern New Jersey. Hults will be in charge of all field application work, service and sales for the firm's Takk static controls, Takk high voltage d.c. insulation test instruments, industrial Staticator and other high voltage electrical instruments.

Forms Southwest Div.

Ralph C. Persons, First Vice Pres. of Sun Chemical Corp., has announced the formation of the Southwest Div. of General Printing Ink Co., with headquarters at 2506 Tillar St., Fort Worth, Tex. The new unit will serve Arkansas, Louisiana, Mississippi, Oklahoma, Texas and New Mexico. Under the arrangement, the Southwest Division will handle the activities of the following Sun Chemical ink divisions in that area: American Printing Ink Co., Chemical Color & Supply Co., Eagle Printing Ink Co., Fuchs & Lang Mfg. Co., E. J. Kelly Co., Geo. H. Morrill Co. and Sigmund Ullman Co. The Fort Worth office will be under the management of Sid Rochelle.

Kenro Graphics Moves

During the latter part of March, Kenro Graphics, Inc., moved to 25 Commerce St., P.O. Box 70, Chatham, N. J. The firm manufactures darkroom lighting equipment and cameras for the Graphic Arts. Telephone number is CHatham 4-8700.

Light *and* color in the printing plant

By ROBERT W. DICKERSON*

**Architect and Engineer, Cleveland, O.*

YOU haven't enough fingers and toes —not even in your whole family— to enumerate the qualities and features in a modern building which are taken for granted and rated as necessities today, but which, only a few years ago were fortunate to get enough consideration to rate as fads. Building insulation, acoustical treatment, mechanical ventilation and air conditioning, just to mention a few which come readily to mind, are typical examples.

Light and color, and their importance to production, have traveled a similar road, and it is only within relatively recent years that their place as essential tools of production have been generally recognized. We say light *and* color because, while each has a separate and distinct identity, they are so interrelated and interdependent that one cannot properly be disregarded while considering or discussing the other.

When man came indoors and found himself hidden from the sun, he at once found it necessary to discover a substitute source of light. This he found in the fire which warmed him and, in later ages, cooked his food and performed other tasks. For centuries, indeed until the invention and practical perfection of the incandescent light bulb, the flame was the only source of artificial light. Even today, more than half of the world's inhabitants have no other means of artificial illumination than torches, candles, oil lamps, jets, and similar light sources.

The progress of artificial illumination since the advent of the incandescent lamp has been phenomenal. Moreover, it has all taken place within the memory of many of those living today. Indeed, many, who by no means regard themselves as patriarchs, remember the pride with which new electric lighting installations consisting of bare incandescent bulbs were displayed. Then came shades, reflectors, bowls, and other diffusers and enclosures and, finally, the gas and mercury filled units.

Progress, as well as being rapid, has been well-rounded. Along with improvement in the light sources, such as greater efficiency, longer life, less cost, etc., have come studies of the quantity and quality of light needed for the performance of work. Today, while research and improvement continue, performance characteristics and illumination standards have been so well charted that a lighting installation to accomplish a given result can be designed with certainty and assurance.

Illuminants in General Use

The illuminants in most general use today are: (1) Filament lamps, (2)fluorescent, and (3) the mercury filled lamp. As related to printing and publishing operations, the filament, or incandescent lamp and the fluorescent lamp are most widely used.

For optimum seeing conditions in the modern printing or publishing plant, illuminants and foot-candle levels should be chosen with respect to the specific tasks to be performed by the workers, as well as cost of installation and operation, maintenance and similar factors. While it is poor economy to expect high level production under conditions of low level illumination, it is also uneconomical to provide levels of illumination greatly in excess of the standards which have been found generally satisfactory.

Because of its low brightness and consequent kindness to the eyes, the fluorescent lamp is rapidly replacing the filament lamp. The illuminating intensity of a 40 w. incandescent lamp in concentrated in a small bulb, whereas the light output of a 40 w. fluorescent lamp is distributed over a tube some $1\frac{1}{2}$ in. diam. and 48 in. long. This obviously means much to eye-comfort. Even though the brightness of a filament bulb can be cut down and its eye comfort improved by shielding it or enclosing it in some type of diffusing unit, that improvement is always accomplished at the cost of efficiency. The fluorescent lamp is substantially more economical in current consumption than the incandescent and, now that improvement in longevity has taken place, most of the advantages which the incandescent unit enjoyed are disappearing. The first cost of a fluorescent installation is greater than that of an incandescent system of a comparable illuminating level, but over a period of time will give greater dollar-for-dollar value. One of fluorescent lighting's handicaps, that of slow or delayed starting, has also been overcome with the development of instantaneous starters.

Despite the inroads which fluorescent lighting has made on the incandescent, there remain many lighting jobs in which they still hold an advantage. In locations where there is much smoke, dust or other lamp soiling media, the maintenance of incandescent units is less difficult and costly. For areas having high ceilings, *e.g.*, large newspaper pressrooms, high wattage incandescent units also have a maintenance advantage due to a ma-

Light and Color

Proper attention to light *and* color in the printing or publishing plant can produce many satisfying results. Among them are improvement in the quantity and quality of work; more attractive working quarters; more healthful and happy workers and less labor turnover. These qualities have been well demonstrated. The probability exists that equally desirable results may come through the aesthetic approach. It's a challenge which should appeal to the Graphic Arts.

CHART A

(a) Most Difficult Seeing Tasks	100 or more foot-candles
(b) Very Difficult Seeing Tasks	100 foot-candles
(c) Difficult or Critical Seeing Tasks	50 foot-candles
(d) Ordinary Seeing Tasks	30 foot-candles
(e) Casual Seeing Tasks	10 foot-candles
(f) Rough Seeing Tasks	5 foot-candles

CHART B

Composing Room (hand composition area, makeup, etc.)	50 foot-candles
Composing Room (area occupied by line-casting machines)	30 foot-candles
Pressroom (general illumination)	30 foot-candles
Pressroom (inspection areas—color, setting, etc.)	50 foot-candles
Stereotype Department (plate casting)	30 to 40 foot-candles
Stereotype Department (flat work)	30 to 50 foot-candles
Engraving and Etching	40 to 50 foot-candles
Bindery	30 to 40 foot-candles
Mailing	30 to 40 foot-candles
Office Area	30 to 40 foot-candles
Wash Rooms and Toilets	10 to 20 foot-candles
Stair Halls, Corridors, etc	10 to 20 foot-candles
Stock Rooms	20 to 30 foot-candles
Other Storage Areas	10 to 20 foot-candles

terial reduction in the number of lighting outlets required. When such units are mounted on disconnecting hangers so that they can be lowered for cleaning and re-lamping, a considerable contribution to safety and maintenance is made. At the high mounting level usually employed for such units, probably 20 to 25 ft., little or no eye discomfort results from brightness and concentration.

Light Quantity Varies

The quantity of light for the proper performance of work varies with the nature of the particular task to be performed. Seeing tasks are rated by illuminating engineers as (1) Most difficult, (2) Very difficult, (3) Difficult, (4) Ordinary, (5) Casual, and (6) Rough.

Chart A gives the recommended foot-candles of illumination for each of these classifications, at the working plane, which is generally taken as 30 in. above the floor.

In the publishing or printing plant few operations call for a level of illumination in excess of that recommended for *Difficult* or *Critical* Seeing tasks. Some film stripping and matching operations might well use higher illumination, as well as certain critical inspection tasks, but in general, a 50 foot-candle level of illumination is as high as is required for the most critical operations.

In Chart B the illumination levels of Chart A are translated in terms of the major activities which take place in a printing or publishing plant.

In newspaper pressrooms it is the prevailing practice to mount lighting units on or near the press running boards and thus provide a rather high level of illumination, 50 foot-candles or more, at and near the press. This is helpful in checking color, making press adjustments, etc. When this practice is followed, the general light level for the room need not be more than 20 to 30 foot-candles. Such a general level of illumination will be sufficient to avoid eye strain when operator's eyes move from the intensely lighted areas to those of less intensity.

Avoid Sharp Contrasts

The avoidance of sharp contrast and eye strain needs also to be watched in areas where line-casting machines are in operation. The concentration of light on the machine keyboards builds up to a rather high degree of intensity. If the light level of surrounding areas is too low, the contrast is so great that the eyes cannot readily adjust themselves. The result is eye fatigue, slowing down of production and a greater probability of errors.

In most areas requiring a low level of illumination, incandescent lighting will be found very suitable. The filament lamp and lighting fixture are lower in first cost than the fluorescent, and in areas where low intensity is not a requisite, *e.g.*, stair halls, toilets and locker rooms, storage areas, etc., they do a good job. Moreover, they still have an advantage which the fluorescent lamp has not overcome, that of longer life when switched on and off repeatedly. The starting cycle limits the life of the fluorescent tube, and some operators have determined that it is an economical practice never to switch them off. They consider the small amount of current that would be consumed during an off period costs less than the lamp life lost by switching it off.

Spacing the Units

Illuminating engineers have a rule-of-thumb practice that the spacing of lighting units should not exceed their mounting height above the floor. Thus, if fixtures are mounted 10 ft. above the floor, they should not be mounted more than 10 ft. apart, if individual fixtures, or if in continuous rows, the rows not over 10 ft. apart. In general, the uniformity of light distribution is improved as the mounting height is increased and the spacing decreased. Obviously, however, the greater the distance of the lighting above the working plane, the greater the quantity of light required to maintain the desired foot-candle level.

Shadows or No Shadows?

Theoretically, the optimum seeing condition is achieved when the light sources are so well distributed and the light so well diffused that no shadows result. For some seeing tasks such a condition is ideal. For others, shadows perform a necessary function, for without them distances are difficult to judge. A case in point is the engineering drafting room of a large utility company where, as a demonstration, illuminating engineers had endeavored to create conditions as nearly ideal as possible. The foot-candle level was high enough to give ideal readings on the drafting table tops. Distribution was so good that no discernible shadows could be seen. All local drafting table light units were removed and within hours their return was requested. Why? Because a draftsman, in putting his pencil or pen to paper, watches the meeting of the pencil or pen point and its shadow on the surface of the paper. He doesn't watch it consciously, but it has become instinctive with him to gauge his movements by that guide.

Handling Special Condition

For many seeing tasks it is highly desirable to supplement a high level of over-all illumination with additional units so located as to provide proper seeing conditions at the locale of the work. In a large newspaper composing room, conditions as nearly ideal, theoretically, as the described above drafting room, had been accomplished. Results in most of the room were satisfactory, but in the makeup section the workers were unhappy. Here again, shadows were needed for the precision work that was being done and auxiliary lighting units suspended close over the makeup tables corrected the situation. Many spots will be found where only special study and experimentation will disclose the amount of light and proper location of the lighting unit.

Color-Light Interrelation

In the design of a lighting installation, the competent illuminating engineer interests himself in the reflectance of ceilings, walls, and other surfaces. It is here that the importance of color and its interrelation with lighting becomes evident. Illuminating engineers consider a range of from 20% to 60% of reflectivity a desirable range. Obviously, there are extremes in reflectivity beyond these limits, but they add nothing to satisfactory lighting. The walls, ceilings and other surfaces can be so soiled, or could

(*Continued on Page 84*)

You can plug 'em if you will

By ROBERT ROYDEN GREER*

**Printing Engineer, Los Angeles, Calif.*

WHITHER Goest Thou? is the title of a great film. Also it can be applied literally to many plant owners in our own Graphic Arts.

A Niagara of words has pounded over the pages of trade publications expounding the virtues of improved management and production policies or ideas.

Many have heard, but few have chosen. Rather than submit new ideas, or repeat old ones on labor-saving methods and plans in this discussion, it seems to me a better plan would be to get down to basic facts about the cause and effect of leaks yet existing in many plants. We would profit by getting our present house in order.

Plugging up the old or unobserved leaks is profitable business. It is extremely profitable in management-labor relations.

Minutes of time are all we purchase from labor. This daily reservoir of purchased labor may be riddled with small or large leaks. Circumventing these leaks with other ideas and improvements will not avail much unless it aids directly in stemming some of those leaks.

Years ago, Burke made a dynamic statement: "By gnawing through a dyke, even a rat may drown a nation." How significant that statement is when applied to the Graphic Arts industry. Indifference to waste from the precious pool of man-hours may finally waterlog or drown the enterprise.

Wasted footsteps cost from 10c to 25c per minute, based upon to whom belong those feet. Those wasted footsteps may in turn cause others to waste footsteps. Thus we arrive at the resultant effect, precipitated by some of the following causes.

Squint-eyed Lighting takes tremendous toll in fatigue, retarded production, inferior quality, error, accident, spoilage and has its effect upon management-labor relations. It is a smart management that calls in a qualified lighting engineer with his meter to explain and prescribe for squint-eyed lighting. This is a general cause of leaks and is a basic problem.

Jig-Saw-Puzzle Plant Layouts happen even in very respectable plants that may have grown just like Topsy. But, rather than project a layout now to correct these leaks and also take care of some growth, eyes are just closed and procrastination is the panacea. One plant owner admitted this serious leak but was going to correct it, when his present lease expired, by moving into a new building seven years hence. Another plant did squeeze a press into the composing room where formerly existed a Linotype. Yet another plant owner squeezed a 2000 lb. remelting pot with water-cooled molds only a few feet from a large Dexter folder and not far from two cylinder press units. This kind of thinking by management is a great cause of leaks and is a basic problem.

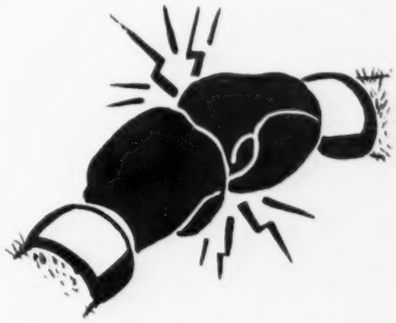
Nonchalant Scheduling of work at each work center results in part of the personnel knowing what work to perform at the start of the shift. Others wait five minutes to a half-hour for their turn to find out. (Naughty, naughty! Only 10c to 25c per minute per man, morning after morning, after morning.)

Chasm of No Returns is the period when a job is completed in some department, and the next job is not issued or started for about 15 to 30 minutes—or even several hours. Many are the causes, but the results: Precious minutes down the drain never to be salvaged.

Hide-and-Seek Job Ticket System is a polite guessing game that is enjoyed in many plants. The secret of this fascinating game is for everyone in the front office to hide the facts on the job ticket—and then for the men in the plant to seek the information. It is a national pastime. Personnel in these plants seem to participate actively at intervals during each day. Here is a revealing example: The foreman hands the craftsman a job with the ticket—with a shudder. Craftsman spends time to decipher the lack of instructions; uses crystal ball; gives up in disgust; goes back to foreman, saying: "Wottinell is this?" Foreman, in disgust, takes his ulcers and job ticket into office and glares at production department head. Production man chases to sales department with ticket and high blood pressure. Sales manager phones to some customer's office to intercept his salesman, who, in turn, has just left to go to the ball game with another customer.

In the meantime, our craftsman has been quietly awaiting return of the foreman. They finally collide, and agree to set it in Janson, 9 on 10, 18 picas. It is a rush, of course, and the night shift also carries on. Seventeen galleys are set and corrected. Thus proofs are awaiting arrival of the salesman in the morning.

Salesman enters, inspects proofs, falls prone on floor from blown fuse. An hour



Mr. Greer talks bluntly in boxing glove language. Perhaps one *or more* of the leaks apply to your plant. If you read this article on the QT, no one will know about it unless you tell 'em.

later the ambulance surgeon hears patient mutter in short gasps that he had told someone the day before (as he dashed out the door) to set the job in Caledonia 10 on 11, 20 picas.

The comedy of errors in our national pastime of Hide-and-Seek Job Ticket procedures is *one of our big loss factors today* in plants throughout the country. It happens in each of the departments. Finished jobs, in some cases, are then finally rejected by the customer after the job has pyramided the cumulative losses of delays or rework in the various departments. Men are many times compelled to take a chance on these super-rush jobs, with or without aid of their little crystal ball (well scratched up from hard usage). Through those scratches they frequently get the wrong answers.

The job ticket is the blueprint of each job. No blueprint for even the simplest object would pass from the draftsman until every specification and dimension was checked and then drawn in. The job ticket for every job must have this same careful treatment if management is to stem one of the big leaks in the industry.

Hunt, Inc., is the thief that plagues every department straight from the front office right through to the shipping dock. System is a keystone remedy.

Hidden Burdens upon each payroll dollar mount up to about 10% in cold cash, such as social security, compensation insurance, vacations, bonuses, holidays, sick leave with pay, severance pay, pension plans, hospital plans, etc. Thus 90% of comprehensive payroll expenditures is the optimum point with which to start turning the wheels of production. The leaks begin to slide from this point down the toboggan of diminishing return.

Let George Do It Attitude is a resultant end-product superinduced by some of the foregoing conditions. This is an index of disintegrating morale that shows neutralized incentive and initiative. Management must explore every channel to maintain an ascending morale factor for management-labor harmony.

Suggestions and Recommendations

Planning and Scheduling of all production is the key to sealing countless leaks in the production of work. A study in improved production controls should be thoroughly investigated.

Preventive Maintenance is simple to understand. The stitch in time that saved nine method is vitally important in the Graphic Arts. The hammer of misfortune strikes without warning to siphon off countless precious minutes at 10c to 25c per man, and bottleneck production schedules.

Management-Labor Harmony can get a real shot-in-the-arm by weekly round-table get-togethers with a sincere purpose of analyzing and correcting problems as they are exposed straight from the shoulder. Representation from management must be fair to get action once correctives have been found. There must be no reprisals of any kind upon the spokesman for each department selected from among employees of each department. Suggestions and constructive criticism must not be stifled in any way. The very essence of success can develop from these meetings if handled properly.

A Qualified Engineer who understands the mechanical and administrative phases, and also has sympathy for and understanding of the human side, can be ultra-valuable in analyzing and assisting all factions to get more closely coordinated into one team with success as the goal. Smart management would benefit a thousand fold by a visit of one of these engineers for a few days every six months.

About 95% of all personnel in your plant really want to work *with* management—not *for* management, unle s morale has dropped to a low ebb. Lighten their load mentally and emotionally, as well as physically. They too, are human, as are you and I. Irritations are subtle destroyers of morale. Morale is the lifeblood of successful business operation.

Printing Week Poster Contest

Recognizing an increased interest in the activity of many in the Graphic Arts with a flair for designing, the Intl. Assoc. of Printing House Craftsmen is sponsoring a 1953 Printing Week Poster Contest. These posters will be used in the promotion of Printing Week observances.

Anyone may participate in the contest who is engaged in the Graphic Arts or allied industries. Details of the copy to appear in the poster are given in the rules of the contest. A substantial quantity of the first place winning poster will be printed by the International for distribution to all Craftsmen's clubs sponsoring Printing Week in 1953.

A representative poster used in the 1950 Printing Week observance.

Announcement of winners and the presentation of awards will be made at the St. Louis convention in August. Entries will be received until June 30, 1952.

RULES OF THE CONTEST

1. Anyone connected with the Graphic Arts or allied industries is eligible to enter the contest.
2. Size of poster is approx. 14 in. by 22 in. or 22 in. by 14 in.; a bleed design would trim slightly under these dimensions; a finished layout is acceptable; illustrations limited to line; no halftone screens; limited to two colors.
3. Copy shall include the words "International Printing Week, January 11-17, 1953"; an area designated on the poster for reproduction of the winning 1953 Printing Week Stamp at least double the original size (1 in. by 1 ⅛ in.); the Craftsmen's emblem in any form; a blank space for imprinting by the local sponsoring group.
4. Entries should be mailed to: 1953 Printing Week Poster Contest, Intl. Assoc. of Printing House Craftsmen, Inc., 18 E. Fourth St., Cincinnati 2, O.
5. Deadline for entries is Monday, June 30, 1952.
6. Three recognized graphic arts industry leaders will judge the contest.
7. First-place winner of the contest will receive a trophy with appropriate inscription. Certificate awards will be made to the other winners as may be determined in number by the 1953 International Printing Week Committee. Presentation of the awards will take place at the International convention in St. Louis.
8. All entries will become the property of the Intl. Assoc. of Printing House Craftsmen, Inc. Decision of the judges is final.

Phosphorescent Ink

By M. S. Kantrowitz, Chairman, Research Committee, Washington (D.C.) Club of Printing House Craftsmen.

A SATISFACTORY phosphorescent letterpress ink has been for a long time desired and sought for. The principal obstacle encountered in this search lay in the fact that the phosphorescent property of any given phosphor is largely dependent upon its particle size. Any reduction in the particle size of the phosphor, by breaking down its crystals as occurs when it is ground into a vehicle as a pigment for an ink, seriously impairs or almost completely eliminates its phosphorescent property.

Being aware of this fact, one of the largest manufacturers of phosphors in this country submitted to our laboratory, for experimental tests, a phospherescent pigment of such small particle size that it might be reasonably assumed that it would not be further reduced or altered by the normal grinding operation of making an ink.

This assumption proved to be correct and printed proofs pulled with both hand-mixed and mill-ground inks made from this pigment showed no apparent differences in phosphorescence.

However, another factor prevented this pigment from making a satisfactory ink. In order to obtain a readable level of brightness, it was necessary to use this phosphor in the ratio of not more than three parts of pigment to one part of vehicle. The resultant of these proportions was a coarse and granular ink which distributed poorly on the printing press and produced mottled prints.

Our experiments thus indicated that this pigment would be excellent for silk screen printing. However, it could not be considered satisfactory for making a letterpress printing ink unless the ratio of pigment could be reduced to at least a 2 to 1 basis. This effect has not yet been achieved and so the research continues.

Fig. 1.—Vernie Grahn, Superintendent, and Harold King, Pressroom Foreman, Cornelius Printing Co., Indianapolis, Ind., discuss placement of new equipment on a wall-mounted plant diagram print made from a plastic drawing.

Some techniques for plant layout

By RALPH B. TUFTS*

**Research Director, Cornelius Printing Co., Indianapolis, Ind.*

As more and more printers come to realize the importance of careful planning of shop workflow and the need for the best possible arrangement of equipment and facilities, we find many an executive poring over templates, blueprints, drawings and models, attempting to better his particular shop plan.

Most people attempting to do a job of plant layout, either the revision of an existing plant or the establishment of a new one, are confronted with the same problems. First, one must have an accurate scale drawing of the building or floor space the plant is to occupy. (usually this is drawn to a scale of ¼ in. per ft.) If architects' and builders' prints are not available, or if changes have been made in the structure, this entails making careful measurements of all building dimensions and making an original drawing to scale. Included should be all doors, windows, column, radiators or other heating apparatus, and other permanent physical details of the space to be occupied. Drafting skill is of course helpful but certainly not necessary, so long as dimensional accuracy is maintained.

Accurate Templates

Before planning can be started on a plant layout, one must have accurate templates of some kind depicting the outer dimensions of each piece of equipment to be considered. These often can be prepared from information or drawings furnished by the equipment manufacturers, but more often than not it is necessary to measure the machinery itself, being careful to take into account such things as press feeders that swing open into the aisle, folder extensions, and other parts which extend beyond the machine proper.

Permanent Reference Points

A record of the layout or floor plan of the plant as it already exists is necessary when working on the improvement or revision of an established plant. In such a record, all equipment should be placed accurately in position. Permanent reference points such as vertical columns, windows, partitions, etc. are useful in locating equipment on a drawing.

If careful consideration and study are given to the planning of a new plant, or the revision of an old one, many alternative plans will suggest themselves before the final decision on the best one is reached. Therefore, it is wise to have a quick and easy method at hand for making permanent records of each idea or arrangement as it suggests itself. Only in this way can one compare all the various possible arrangements with one another and with the existing layout and so arrive at a decision as to which offers the greatest advantages.

Several techniques for handling these problems in plant layout work have been developed which may prove of value to others confronted with the same situation.

Simple Techniques

A very simple and inexpensive technique was described in an article *Planning in the Combination Shop, Printing Equipment*

Fig. 2.—Ty Mickley, Mechanical Supt., and Marion Medlock, Mailroom Foreman, employ movable plastic templates cut to exact scale size in planning rearrangement of mailroom equipment. Templates are held in place by permanent magnets.

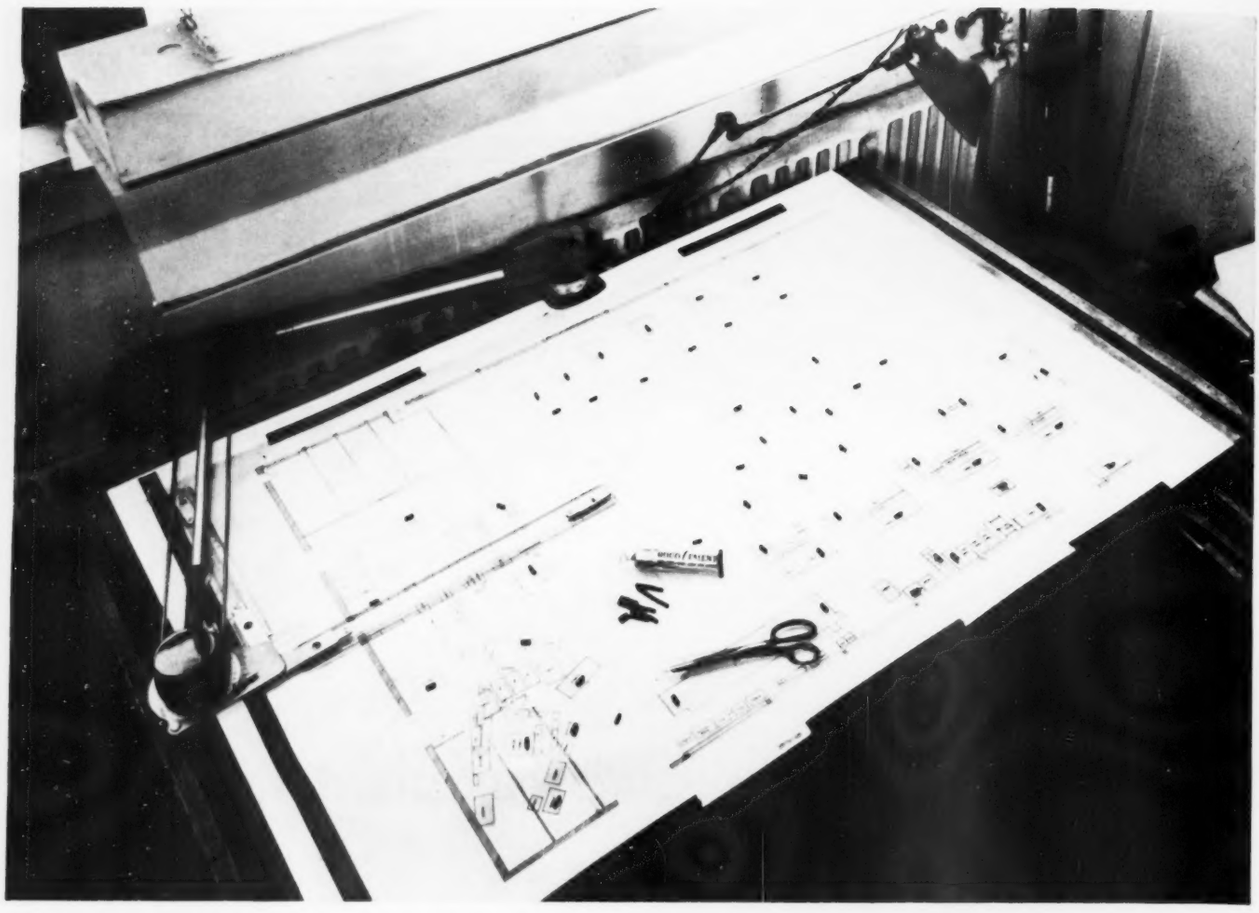


Fig. 3.—This adjustable drafting board is covered with a painted sheet of galvanized iron over which is mounted a plastic sheet upon which has been drawn a scaled down diagram of the floor plan. The transparent Vinylite templates (cut to scale) are easily moved into position and are held there by Alnico magnets.

Engineer, January 1950. In this case, which involved the rearrangement of an existing plant, a floor plan of the building was drawn to scale, and on another sheet outline templates of all the items of equipment were prepared. About a dozen blueprints of each were obtained. One set of templates was cut out and pasted onto one of the building prints in the exact locations the equipment held at the time of the study. A second set of templates was then cut out and used in panning a new layout on one of the other building prints. When a feasible arrangement was arrived at these templates were then pasted onto the print in position and another set started. Eventually, some half dozen or so plans were prepared in this manner. After careful comparison of these plans with each other and with the original layout, one plan was determined to offer the greatest number of advantages. This method might well serve satisfactorily in the case of a relatively small plant or where there is not expected to be a great deal of this type of work required.

Layout for Larger Plant

Recently, however, in a larger plant the need arose for a quick and inexpensive method of making positive prints from drawings right in the plant. The following method was used and proved very successful. It might well serve others where the purchase of blueprinting or other print making equipment is not warranted, but where high quality prints must be made on short notice. It is especially applicable in plant layout work.

Protecting Plastic Sheet

Inked drawings are made on clear Vinylite[1] sheet 0.010 in. thick. Usually it is desirable to rough in the drawing with pencil first and it is very difficult to draw directly on the Vinylite with pencil, so the sheet is sprayed lightly with Krylon Plastic Spray,[2] giving the surface a slight tooth which will more readily accept lines drawn with a medium hard pencil. This plastic spray, marketed by Krylon, Inc., is readily available in pressurized cans from art supply houses. Drawing ink should be of the type especially prepared for drawing on plastics. Regular drafting instruments are used.

If the drawing is to be handled extensively, it is a good idea to protect the inked image by spraying with this Krylon after the drawing is completed. This will prevent scratching and chipping of the lines.

Securing Positive Print

To make a positive print of this drawing, the drawing board is adjusted to a horizontal position and a sheet of Bruning Whiteprint Paper No. 142[3] is placed emulsion side up on the board. Over this is placed the Vinylite sheet on which the drawing has been made. A piece of plain clear glass on top will improve contact between the drawing and the light-sensitive paper.

Printing by Ultra-violet Lamp

Suspended over the drawing board hangs a 48 in. two tube industrial flourescent fixture (obtainable from any electrical supply house) equipped with two General Electric Black Light or Ultra-violet tubes[4]. The exposure is made by turning on this lighting fixture for about 4 min., depending upon the distance from the light source to the work.

[1] Bakelite Corporation, Div. of Union Carbide & Carbon Corp., 300 Madison Ave., New York 17, N. Y.

[2] Krylon, Inc., 2601 N. Broad St., Philadelphia 32, Pa.

[3] Charles Bruning Co., 100 Reade St., New York, N. Y.

[4] General Electric Co., Lamp Dept., Nela Park, Cleveland 12, O.

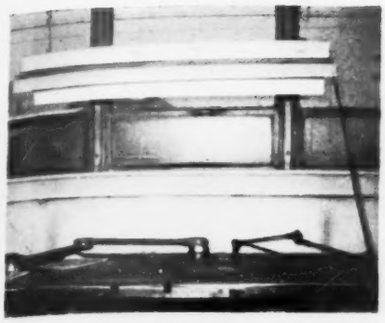


Fig. 4.—An industrial fluorescent lighting fixture is chain-suspended over the drawing board. Ultra-violet tubes are used for printing exposure upon the Bruning Whiteprint Paper. This setup will make satisfactory prints up to 36 in. by 48 in. Fixture is high enough above the board so as not to interfere when the board is used for drawing. Daylight entering windows behind the board does not interfere with handling of direct-positive Whiteprint paper.

Processing the Print

After exposure, the print is processed by swabbing it with a prepared developer solution furnished with the Bruning Whiteprint Paper. No darkroom is necessary and there is just the one solution. No processing trays or sink are required, and the paper can be handled in ordinary room lighting without difficulty.

The developer solution leaves the print paper somewhat damp, but upon drying the result is a permanent, good quality positive black and white print of the original drawing.

Layout Record Before Revision

In applying this method to plant layout work, a drawing is first made of the building or floor space detail on one sheet of Vinylite and this is sprayed with Krylon to protect it from scratching and abrasion. Then a second sheet of Vinylite is placed over this drawing and the equipment in the plant is drawn in to accurate scale and in their exact positions on this second sheet. Upon completion of this second drawing, a print is made by the method described, exposing the paper through both sheets of Vinylite at once, producing a permanent print of the building and equipment. This then is a record of the plant layout before revision.

Transparent Templates

When no more prints of this layout are required, the sheet of Vinylite upon which the equipment was drawn is cut up with scissors, making individual transparent templates of all the machinery. These templates are then used in planning alternative layouts. They can be moved around on the drawing of the building to determine just what the best arrangement might be.

Permanent Record of Each Plan

Each time a feasible arrangement is reached, a record of that plan is made by sliding a sheet of the Bruning Whiteprint paper under the drawing of the building and making an exposure through the Vinylite drawings with the individual plastic machine templates in place. This will produce a record of that particular layout and the templates can then be moved around again until another possible arrangement is arrived at.

In this manner many ideas and possibilities can be tried out and a permanent record made of each. There is no need to rely on memory after having changed the templates around several times.

Even in plants which have access to blueprinting, Ozalid[5] or other printmaking processes, this technique is valuable because it enables one to make prints from a layout made up of many small pieces, which could not be fed through a printmaking machine.

This method will save many hours over any system which requires drawing each alternate layout or pasting down paper templates. Since it is a direct positive process it will save time and money over other photographic methods of recording the various layouts. The materials used are relatively inexpensive and readily available. The General Electric Black Light tubes cost only a few cents more than ordinary flourescent lamp tubes.

Use of Permanent Magnets

Another modification of this method which is being used successfully at the Cornelius Printing Company is that of using permanent magnets to hold the plastic templates in place on the drawing. Often when working on the arrangement of equipment in a good sized plant it is necessary to leave the work in one area, such as the composing room, for several days while concerned with the layout of the pressroom or some other area. Or it may be desirable to maintain a continuous plant layout setup so that at any time new arrangements of equipment can be considered. In these cases it is valuable to utilize permanent magnets.

Fig. 5.—Assistant Supt. Robert Bell, after exposure of the plastic layout containing alternative equipment arrangement develops the print by swabbing it with cotton saturated with one-solution developing solution.

A sheet of galvanized iron the size of the drawing board is painted white and placed on the board. Over this the Vinylite sheet upon which the drawing of the building (or floor space occupied) has been drawn, is placed. To each of the equipment templates one or two small Alnico *V* magnets[6] is cemented. Duco cement does a very good job here. Whenever a template is placed into position on the layout it is held in position by the magnet. They can be easily picked up and moved to new positions, however.

If it is desired to make prints of the layout, when these magnets have been used, the process is the same as previously described. The direct-positive printing paper is placed between the Vinylite sheet and the galvanized iron and the exposure is made. A piece of glass cannot be used to obtain good contact when the magnets are used but the magnets themselves help hold the layout in close contact with the print paper. The magnets show up on the finished print, of course, but this is not a serious drawback, especially since all magnets are within the outlines of equipment templates.

[5] Ozalid Div., General Aniline & Film Corp., Johnson City, N. Y.

[6] Thomas & Skinner Steel Products Co., Indianapolis, but they may be obtained from other well known companies.

ITCA Design Contest

A contest in typographic design to be participated in by apprentices employed in Intl. Typographic Composition Assoc. member plants, has been announced by Frank M. Sherman, ITCA Secretary and Exec. Director. The competition will cover the following three classes of work: business stationery consisting of a letterhead and envelope corner card for use in business correspondence by the ITCA; a program title page for the 1952 ITCA Convention program; and a magazine cover for 1953 issues of the *Trade Compositor* (ITCA publication). Contestants may participate in one, two or all three classes.

Cash prizes will be awarded for each classification and will be announced at the Association's October convention in St. Louis. Only apprentices employed by ITCA members who will not become journeymen until after January 1, 1953, are eligible to compete in the contest.

Complete specifications, copy, etc., will be sent to entrants upon application before June 1st to ITCA Headquarters, 1015 Chestnut St., Philadelphia 7, Pa. Designs must be mailed not later than August 1st.

The Committee of Judges include Rawleigh T. Shepherd, Chairman, St. Louis; Arthur S. Overbay, Typographic Service Co., Indianapolis; John Lamoureux, Warwick Typographers, St. Louis; and William E. Lickfield, Editor, *Trade Compositor*, Philadelphia.

H-S Named Distributor

Harris-Seybold Co. will distribute Baldwin and Ortleb ink agitators, according to a recent announcement. It was stated that both types of agitators are available for presses of all sizes and makes.

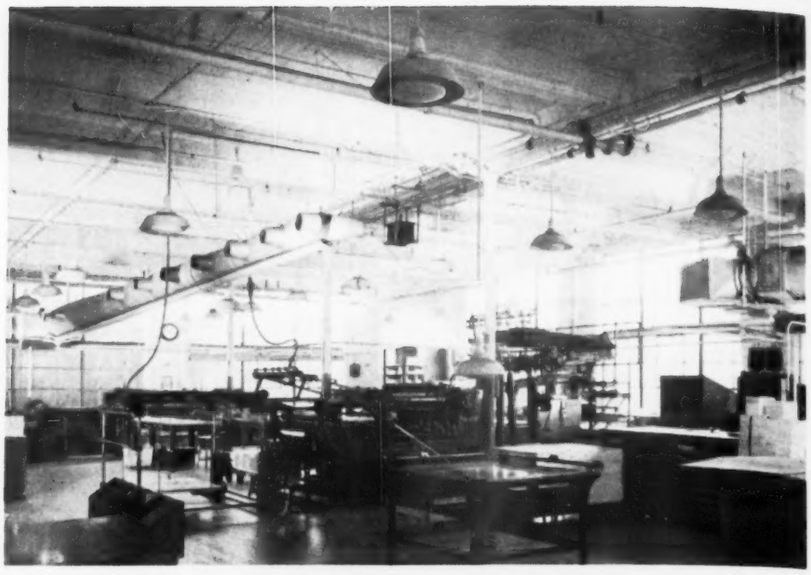


Fig. 1.—View in pressroom in which Bahnson Humiduct system is used. Consists of ventilating fan, centrifugal evaporator, distribution duct and intake which brings fresh air for humidifying, filtering, heating and cooling (in summer) before distribution into the room.

Humidity and air conditioning control

By **FRANCIS A. WESTBROOK***

**Mechanical Engineer, Benson, Vt.*

SOME degree of control of the humidity in printing plants has been practiced for a good many years but more recently, partly due to the expansion of lithographic printing, the control has been made more complete in numerous instances so that the temperature and relative humidity remain constant throughout the year, regardless of the season. This is true air conditioning and involves the addition of moisture to the air when the room or building is heated in winter and the removal of moisture in summer.

View of Abbeon Dehumidifier, Model WA-5, which will reduce relative humidity in spaces up to 13,500 cu. ft.

Formerly, and this still applies to the great majority of printing plants, humidity was added to the atmosphere to prevent its dropping too low, but nothing was done to keep it from rising beyond any pre-determined point. However, the addition of moisture at certain times has the advantage of reducing the extent of the fluctuations which would otherwise take place.

One of the important objectives in air conditioning is control of the moisture in the atmosphere of the various departm nts of the printing plant. To gain a clear understanding of what is involved will be worth while to explain briefly just what is meant by the terms *humidity* and *relative humidity* so frequently heard. In the first place, water is always present in the air and is referred to as humidity, and the weight in grains per cubic foot is the absolute humidity.

Relative Humidity

However, the capacity of the air to hold water increases with the temperature of the air, and this is where the term relative humidity comes in. By relative humidity is meant the actual amount of water in the air at a given temperature compared with the maximum which the air can hold at that temperature, without the formation of rain, fog or dew. The latter is the saturation point, or point of 100% relative humidity. In other words if the relative humidity is 70% at a temperature of 90 deg. it means that the moisture content, or absolute humidity of the air, is only 70% of the amount it could hold at that temperature.

It is interesting to note that the amount of water in a cubic foot of air at the point of saturation, or 100% humidity, is 2.87 gr. at 40 deg. F., 4.89 gr. at 55 deg., 8.05 gr. at 70 deg., 11.08 at 80 deg., etc. At 90 deg. and 70% r.h. the air holds seven times as much water as at the same relative humidity and 32 deg. temperature. Thus it is evident that outside air carries much less moisture in cold weather than in warm weather, and if air with 70% r.h. and 32 deg. temperature is brought inside and heated to 90 deg. the relative humidity is greatly decreased, although no water has been removed from it.

From this it is evident why, in winter, heated air must have humidity added, by means of humidifiers, and why in summer it is frequently desirable to dehumidify in order to maintain a constant relative humidity in the printing plant.

Humidity Variation

How greatly humidity varies inside a building is shown by some observation-

HUMIDITY VARIATION INSIDE BUILDING

	Temp. Deg. F.	% R.H.
Summer, windows open	80-85	42-48
Fall and spring, windows open	55-65	40-50
Winter, heated, windows closed	75	15-25
Winter, heated, windows closed	80	10-20
Winter, heated, windows closed	85	5-10

reported by the U. S. Weather Bureau in the accompanying table.

From this it would appear that dehumidification is never called for as 50% r.h. is about the lowest ever considered desirable in the Graphic Arts industry. However, there are locations and humid days in summer when the high humidity is the despair of printers and when dehumidification just about makes the difference whether it is possible to run the plant or not.

Why Constant R.H.?

At this point it will be well to stop for a moment and consider why constant relative humidity is so desirable. In the first place paper will stretch or shrink in practically direct proportion to the relative humidity of the air to which it is exposed. Outdoor relative humidity is constantly changing and this is accompanied by corresponding changes indoors, although it is almost always lower in the pressroom than outdoors due to the heating system, heat given off by the motors, machinery and other causes. Consequently, a given sheet of paper will be constantly changing in size so that good register becomes impossible. For instance, a sheet of coated paper 64 in. long stretches 5/32 in. when the relative humidity is increased from 35 to 65%, and this is not an uncommon 24 hr. variation.

Paper Behavior

Another interesting practical point is that paper made of pure wood fiber and given lengthened time in the beater to increase its strength has around 5 to 7% moisture present when it leaves the paper machine and is then in first class condition. This corresponds to about 55 to 65% r.h. at ordinary room temperatures. If the air in the pressroom is drier than this the paper gives up some of its moisture and curls because the contraction of the matted fibers is greatest across their diameter. This condition is, of course, corrected if the relative humidity in the room is brought back to the proper point, and the paper will again lie flat.

In addition, it need hardly be stressed that paper with the proper moisture content takes ink much better than dry paper. It does not smear and smut sheets as readily in contact.

Paper in which the requisite moisture content is maintained is enough of an electrical conductor not to generate static. For this reason it is particularly desirable to provide for adequate humidity in winter when cold dry outside air is heated and made still dryer, as this causes excessive drying out of the paper, renders it a good insulator and consequently causes it to generate static electricity when subjected to processing.

Effects of Low Humidity

Low humidity causes newsprint to become brittle and to tear easily; and in the bindery low humdity seriously impairs the folding quality of the paper. It is also necessary to control the humidity of the paper stockroom, so the paper will be in proper condition when taken out. There are other reasons why excessively low relative humidity is disadvantageous, including the health of the workers, but enough have been detailed to make the case convincing.

For letter press work the desired condition generally is 50% r.h. at 80 deg. F. temp. Offset plants may want to keep the humidity somewhat lower to facilitate drying of the plates. For decal work on paper one prominent manufacturer considers the relative humidity should not be less than 55% nor more than 70%. Another one states that 65 to 70% is best for printing ceramic decals. Optimum humidity naturally varies with the kind of work being done, the moisture content of the paper, etc., and this can best be determined by experience.

Dehumidification

The case for dehumidification is about the same. That is, if constant relative humidity is to be maintained throughout the year there are times when moisture must be removed from the air, especially in summer. Of course, excessive humidity is unfavorable to the rapid drying of ink and various other processes in printing and lithographing. Other ill effects include "baggy" makereadys and changes in weight of impression, roller swelling, offsetting and smudging, stretching, etc.

The Unit System

A widely used method of humidification and conditioning, known as the unit system, is seen in Fig. 1. In this figure is shown an installation of the Bahnson Humiduct. It consists of a ventilation fan, centrifugal evaporator, distribution duct, and intake to bring fresh air into an enclosure for humidifying, filtering, heating or cooling (in summer) before distribution into the room.

The centrifugal evaporator produces a fine spray which is partly evaporated in the duct and partly distributed as entrained moisture from the duct outlets, and evaporates as it passes into the room.

In cases where only humidification is desired the unit consists of the fan, evaporator and duct. In order to secure even distribution several of these units may be installed as is seen in Fig. 1. Room air is recirculated through a box screen intake and the introduction of moisture is automatically controlled. If ventilation is desired a fresh air intake may be made through a window or the wall of the building. Fresh air dampers and recirculating dampers are provided which are automatically controlled so that when the room temperature rises the fresh air damper opens and the recirculating damper closes, and vice versa.

Cooling by Evaporation

Cooling by evaporation is also practicable, but is noticeable and controlable only when fresh air is available under automatic control. That is, when the evaporation system is started up the temperature of the room drops because of the heat absorbed in evaporating the entrained moisture. This cooling of course stops when the humidity has reached the point where the automatic control stops the addition of moisture. If heat is being produced in the room, as is usually the case due to the operation of motors, machinery, etc., the air eventually becomes warm again. If ventilation is provided for, the automatically con-

Fig. 3.—Unit type humidifiers without ducts.
(Photo courtesy Walton Laboratories, Inc.)

Fig. 4.—Air conditioning duct system in lithographic pressroom of Buck Printing Co., Boston. (Photo courtesy Westinghouse Electric Corp., Sturtevant Div.)

trolled dampers admit dry fresh air and exhaust warm humid air, and the evaporation will start to maintain the predetermined humidity. Of course the wet bulb temperature of the outside fresh air places a limit on the evaporation cooling which is possible.

Constant R. H.

When constant relative humidity and temperature throughout the year are desired, a refrigerating element may be added to the unit. We then have complete air conditioning, which usually includes air filtering or cleaning. Chilled water is circulated through coils in summer for cooling and steam in winter for heating. If the air carries more moisture than it can hold at the temperature of the cooling coils condensation takes place at that point and is drained away. The cooled air, which has a higher temperature than that of the cooling coils, is then humidified to the proper extent by the centrifugal evaporator.

Complete Air Conditioning

Complete air conditioning is expensive and is not always practicable nor necessary. For this reason humidification is frequently used alone and, less frequently, dehumidification. We have seen an example of simple humidifying equipment (Bahnson).

Where refrigeration is not employed a dehumidifying chamber may be used which contains chemical dehydrants such as lithium chloride, silica gel, etc. Dehumidifying devices such as these are of course a compromise with air conditioning but there may be situations where they can be very helpful.

Among unit type humidifiers, which are simple to install and operate, used in the Graphic Arts industries, including paper conditioning, are the Walton system and the type E Bahnson units, and others. There are several models but in general they comprise a motor-driven atomizer connected with a water supply and designed to be suspended from the ceiling. There is no duct system. An example of this type of humidifier as installed in a printing plant is seen in Fig. 3. Automatic control can be furnished.

When the humidity becomes too high in a room, unit dehumidifiers can be used. Abbeon Supply Co. has announced the Abbeon Dehumidifier, Model WA-5 (Fig. 2), which the manufacturer claims will prevent rust, mold, mildew, dripping pipes, wet walls, dampness of products during manufacture, warping and other similar problems caused by high humidity.

The principle of operation of the unit is the same as that of an electric refrigerator. Moisture-soaked room air is drawn into the dehumidifier by a fan located inside the top of the unit. This air then passes over cold coils where it is deposited in much the same manner as beads of moisture drip down the outside of a pitcher of cold water on a hot, humid day.

Abbeon states its unit will dehumidify approx. 13,500 cu. ft. of space in an average basement or enclosed area. In larger or more open areas more than one dehumidifier is often employed to properly control the moisture. The unit measures 13 in. by 13 in. by 9½ in. high. Its weight is 86 lbs. Other specifications: 115 v., 60 cy., a.c., 1/5 h.p. compressor.

One Company Employs Two Forms

The Buck Printing Co., Boston, employs two forms of air conditioning equipment. The company occupies a three story and basement building in the Back Bay section of the city where relative outdoor humidities of from 75 to 80% prevail at certain seasons. This has rendered dehumidification highly desirable in at least two departments in order to avoid waste and inefficiency.

Three years ago it installed a Westinghouse air conditioning system to control the humidity in the offset plate making room. As is well known, excessive moisture ruins offset plates quickly because the base material of which they are made is absorbent. Formerly it was necessary to make over about half the plates, but since air conditioning was installed less than 1% of the plates have to be made over because of humidity conditions. In the three years air conditioning has been employed the savings resulting from it have more than paid the $25 thousand which it cost. Part of the saving is, of course, due to the improved and uniform condition of the paper and the better operation of the press, which can now be

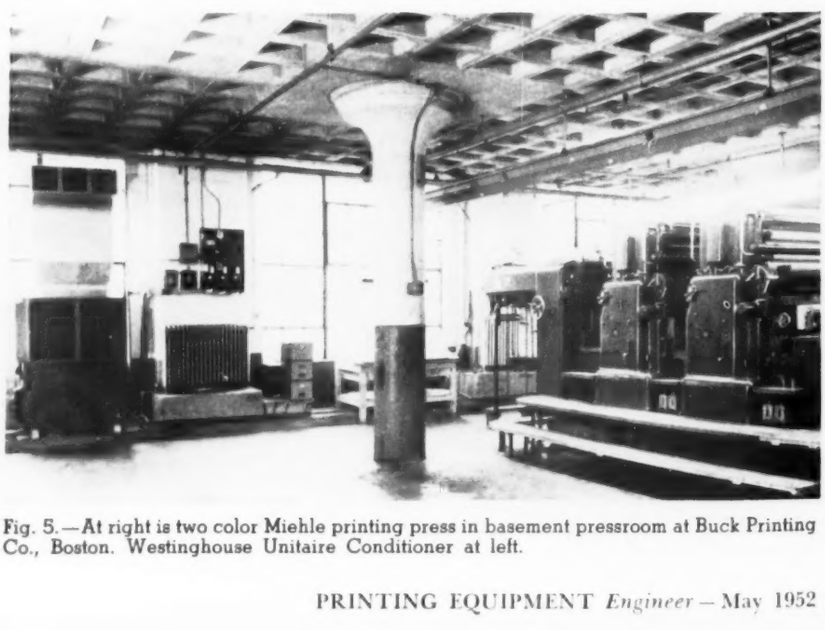


Fig. 5.—At right is two color Miehle printing press in basement pressroom at Buck Printing Co., Boston. Westinghouse Unitaire Conditioner at left.

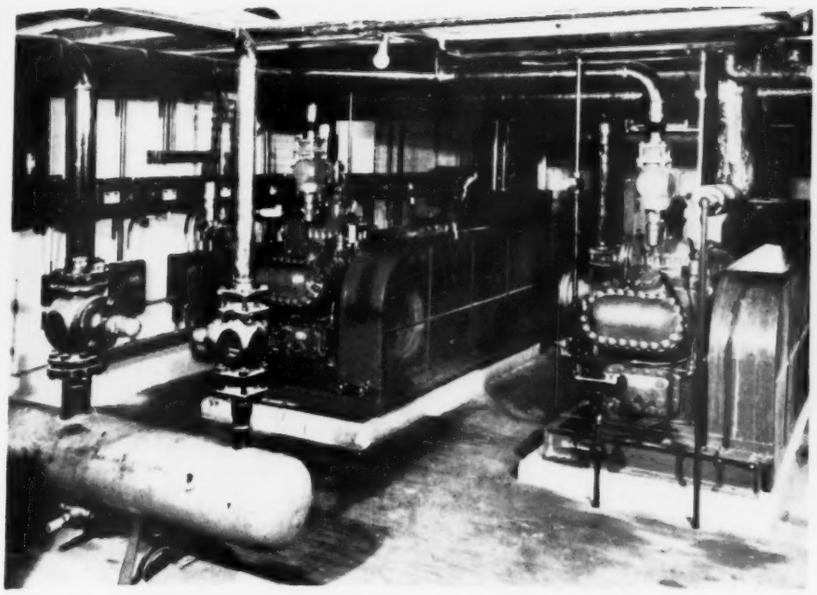


Fig. 6.—In one lithographic plant, York Corporation made four air conditioning installations. Three of the installations are direct expansion systems using Freon-12 as the refrigerant. Shown here is the York v-w compressor system for air conditioning.

run at full capacity the year round regardless of outside weather conditions.

In Fig. 4 is shown the air conditioning duct system in this department by means of which the desired constant year round relative humidity and temperature are maintained.

Conditioning a Basement

There is another interesting application of air conditioning at the Buck Printing Co. It was made in 1951. The company purchased a two-color press and because of its weight it was necessary to install it in the basement. The dampness of the environment is naturally exaggerated in this location and dehumidification was called for in order to secure good register and to avoid the other difficulties incident to excessive humidity.

As it was not necessary to air condition the whole basement enough of it was partitioned off with insulated partitions to accomodate the press and to provide the required working space. The air conditioning equipment consists of a Westinghouse Unitaire Conditioner, which is a packaged unit designed to care for a limited space with minimum expense and which is readily moved as a unit from one location to another. In Fig. 6 is shown the press at the right and the Unitaire conditioner at the left. By means of this unit it is possible to maintain constant temperature and relative humidity in the press room throughout the year. Fig. 5 shows the insulated partition and the Unitaire Conditioner.

The York Corporation has also made some very interesting installations especially lithographic plants. In one of the largest in the country having 3 four-color presses, 8 two-color presses and 3 single-color presses it has made four air conditioning installations. The first was for the basement paper storage, paper counting and sizing and the first floor pressroom; the second for the cooling sections of the varnish tunnels; the third for the administrative offices and the fourth for the art, photographic and photocomposing departments. The last three are direct expansion systems using Freon-12 as the refrigerant, of the type shown in Fig. 6.

Little Printer Needs It

Actually, smaller lithographic printers need air conditioning just as much as the big ones as otherwise they are at the mercy of the weather, due to too much humidity in summer and too little in winter. These printers usually cannot afford such expensive and elaborate installations as the big ones, nor do they need them. In these cases the smaller, factory made or packaged conditioners will serve very well in most instances. They provide or year 'round temperature and humidity control and are much less expensive.

Expansion Fin Coil System

Such units are frequently installed only in the pressroom because paper can now be purchased as needed from the paper mills with a specified moisture content and with a properly air conditioned pressroom there will be a minimum change in the moisture. Of course, similar units can be placed in any of the other parts of the plant where the management considers it desirable. The York Corporation has arrived at a design whereby the necessary cooling and dehumidifying in summer is effected by direct expansion fin coil surfaces instead of the relatively expensive spray washer method.

An installation of this kind was made in a pressroom 130 ft. long by 65 ft. wide by 18 ft. high with 2 four-color and 3 two-color presses at the Stecher-Traung plant in Rochester, N. Y. The former are driven by 20 h.p. motors and the latter by 10 h.p. motors. In addition there are several smaller motors totalling 34 h.p. and there are 35 workers in the area. As the roof is constructed for natural lighting there is very little heat generated by artificial lighting.

Two unit air conditioners were installed with expansion cooling coils, motor-driven fan, air filters, steam air heating coils and winter humidifying equipment, plus accessories. One Freon-12 compressor and one evaporative condenser serve both conditioners. Complete automatic control was also provided for. The total cost of the complete installation, including piping, duct work, etc. was about $18 thousand, or an annual investment cost of $3.6 thousands. The advantages realized made this a profitable investment.

Various instruments are available for measuring relative humidity so that the need of air conditioning need not be left to guess work, and by which the effectiveness of an installed air conditioning system can be checked. Such instruments include indicating and recording units.

Safety Conference

Willard A. Anderson, General Chairman of the Printing and Publishing Section of the National Safety Council announced that a Spring Safety Conference, co-sponsored by many national organizations and New York area associations, will be held at the Statler Hotel, New York, on May 22. The conference will provide information on economies which can be effected in the industry through properly organized safety programs designed to prevent avoidable lost time accidents.

A number of the national organizations which are cooperating in this activity include the Printing Industry of America, Inc., Intl. Assoc. of Printing House Craftsmen, Education Council of the Graphic Arts Industry, Book Manufacturers Institute, Folding Paper Box Assoc. of America, Lithographic Technical Foundation, American Newspaper Publisher's Assoc., New York Employing Printers Association and others. As a result of this cooperative work, there will be presented to the industry at the spring meeting a well organized program of accident prevention based upon a new Safety manual which has been written specifically for the Graphic Arts industry.

Dayton Rubber Report

The Dayton Rubber Co. has issued a 36 page Annual Report for the fiscal year ended October 31, 1951, in which the firm reports net sales of over $54 million. Printed in five colors, the report includes views of the company's manufacturing facilities and illustrations of its products. The cover, symbolizing the two basic rubbers, natural and synthetic, was printed by offset employing Dayco fountain dividers, rollers and blankets. The fountain dividers enabled printing the four colors by running the sheet once through a two-color press. This is known as Dayton Rubber's Multi-Color Process.

Workflow principles

for planning printing plant layouts

By A. C. ARNESEN*

**District Engineer, American Type Founders, Elizabeth, N. J.*

SINCE Henry Ford conceived the idea of the assembly line for the mass production of automobiles a half century or so ago, virtually every manufacturing business has found some application of it which hastens the conversion of raw materials into finished products. It is based, of course, upon the geometrical theorem that a straight line is the shortest distance between two points, whether these two points be separated mechanically by a given dimension in space, or ideologically by the multiple processes necessary to transform a conception into a tangible product.

When American Type Founders established its Printing Plant Layout Engineering Dept. in 1915, its purpose was to provide printers with a service which would help them apply the principles of proper workflow to the assembly line represented by their equipment as it converted a piece of typewritten or hand written copy into many hundreds or thousands of printed pieces. And, while the printing plant is vastly different in detail from the automobile factory, the same basic principles which made it possible to speed up the manufacture of motor cars are also making it possible to speed up the number of printed pieces a shop can turn out in a day.

At ATF we label the aggregate of these principles *Direct-Line Layout*. We start with the copy as it arrives on the manufacturing floor and carry it through the progressive steps in its transformation into type, plates, printing form, transfer to paper, folding and binding. Because we have worked in many kinds of printing plants, we have come to know the important elements of housing, personnel, proper equipment, manufacturing control and printing plant management.

These five factors may be considered and treated individually, but they must be considered collectively as well. If one of them is neglected, the detrimental effects cannot be overcome by presenting ideal conditions to meet the remaining factors. All the factors must be studied and woven into the general plan of operations if maximum efficiency is to be realized.

The interdependency of these factors indicate that merely providing for a new plant layout may not be the cure for all the diseases of a given print shop. The layout is only a link in the production chain. If it is apparent that the rearrangement of a plant is necessary to readjust excessive production costs, it is still desirable to investigate all of the other production factors before making the change.

Before we go into the question of plant layout with its applied workflow principles, we must give some thought to the building which it now occupies, or the one which it will occupy. In the case of a new building, there are certain things to avoid. If the plant is already in a building which has some objectional or undesirable features, we should first endeavor to determine if they can be corrected.

Three to Two Ratio

Shape and size of the rooms to be occupied are the first physical characteristics to come under consideration. The most desirable space in which to lay out our printing production line is rectangular. Experience indicates that a ratio of length to width of three to two works out very well. These proportions lend themselves to good arrangement. Thus a small shop 20 ft. wide by 30 ft. long is practically ideal, as is a larger one 60 ft. wide by 90 ft. long.

When inspecting a building for a possible location for the plant, or when contemplating structural changes or additions to a building already occupied, it is a good idea to make a check list of the points which should receive special study and consideration.

First, a building where the rooms are badly cut up by stair wells, elevator shafts, offices and projections should be avoided, unless changes to correct these deficiencies can be made with reasonable expense. Effective floor space is shortened out of actual proportion by irregularities caused by corners, indentations and cutouts. If it is necessary to resort to less desirable space, it is often economical to remove the objectionable features at the outset, even though it runs up the cost considerably.

Plant Employee Health

Personal health of plant employees was long thought to be a private affair, but America's industrial coming of age has indicated that the economic factor involved absenteeism because of illness can often spell the difference between an adequate profit or none at all, between top-notch workmanship and sloppy production. Because of this economic consideration alone, the aspects of proper heating, ventilation and sanitary facilities are important.

Problems of lighting have reached a high plateau of scientific solution. Natural light is too undependable and lighting engineers have learned how best to make up for its deficiencies under any and all conditions.

Employ Architect or Engineer

There are other fundamentals to look for in the selection of a plant location. Elevators must be of sufficient size and capacity to accommodate equipment and stock. Loading docks, off the street in downtown areas, should be available for

(Continued on Page 80)

Floors in the printing plant

By STAFF WRITER

THE importance of flooring in commercial or newspaper printing plant planning should be a prime objective of the executives in charge of the planning operation. New plant construction is often referred to in the phrase, "From the ground up." The ground in a printing plant is the floor and constitutes one of the first phases in planning.

To acquaint its readers with some of the different kinds of flooring, *Printing Equipment Engineer* discusses them briefly. There are a number of flooring materials available. After you have studied them, consult your architect or printing engineer. Talk to him about suitability, wearing qualities and that "tired feet" feeling prevalent among workers.

Concrete Floors

One of the most widely used materials for printing plant floors is concrete. A well made concrete floor will have a long and useful life providing it is well maintained. It has been observed, however, that such floors will wear out quicker than any other part of the building because they are subjected to traffic's constant abrasive wear.

The first warning sign of wear on unprotected concrete floors is dusting, (fine particles of sand and cement breaking away from the surface) caused by the abrasive action of sweeping, moving feet and trucking. This can be counteracted by applying a hardening agent to the original concrete as it is being mixed. Chemical compounds are also available which, when applied to a finished floor, penetrate the pores of the concrete, reacting with the cement to harden and fortify the surface against the effects of abrasion.

A common preventive agent for dusty concrete floors is ordinary deck paint available from several nation-wide manufacturers. It is advisable, however, that the plant executive check with the firm which supplies the paint to ascertain to what extent the paint selected will be affected by chemicals, acids, truck movement, oil and other lubricants. Not many manufacturers will recommend paint on a surface subjected to heavy or concentrated traffic such as, for instance, trucking aisles.

Useful supplementary coverings on concrete floors are rubberized floor mat runners which add comfort to the workman's feet and safeguard against accidents. Many plants use these mats in aisles to reduce wear on the floor from work movement. Here again a check should be made to determine whether they possess preventive qualities which would afford protection from operating activities.

Coatings for Floors

When chemicals, acids or strong alkalies are spilled or dropped on concrete floors, or where oil and grease conditions exist constantly, concrete will not stand up for a satisfactory length of time. Contrary to popular conception, concrete is actually porous and slowly disintegrates under these conditions.

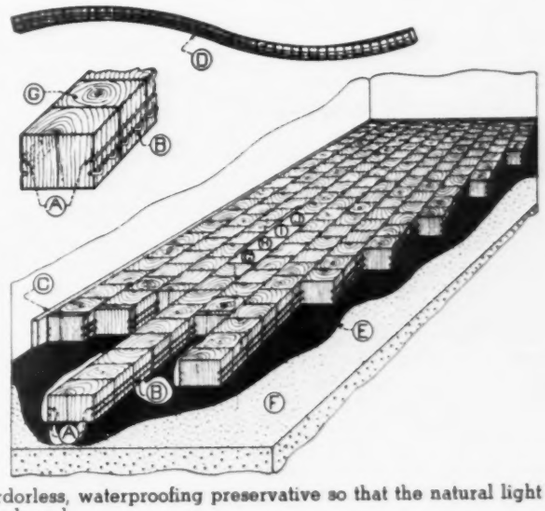
To safeguard against such damage, the Stonhard Company has developed a protective coating known as Stonpach and which is described as a flint-hard, dense flooring material. It is recommended, according to the sponsor, because of its resistance to the disintegrating effects of the inks and fluids used in printing processes.

Stonpach is a dry, granular mix which requires the addition of water. Its characteristics are such that floors may be repaired during the week end and can be returned to service the following Monday. It may be used either as a patching material or for making a complete overlay on an existing concrete floor. It may be placed monolithically as a ½ in. wearing surface over a new concrete slab, placed before base concrete has set.

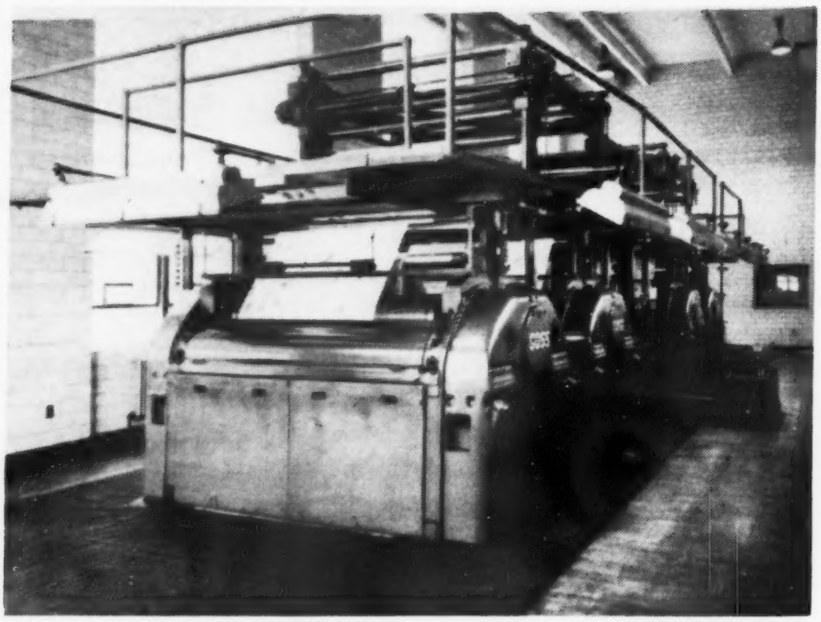
Six pounds of Stonhard Stonpach are required for each square foot of surface ½ in. thick. All areas to be patched or overlaid with the material must be roughened by completely picking off the surface of existing concrete and thoroughly saturating with water.

In applying, a bonding coat composed of Stonpach with sufficient water to make a creamy mixture should be thoroughly brushed into the area to be resurfaced. Stonpach must be laid at a minimum thickness of ½ in. and cannot be feather edged. Where the floor has been roughened to a point sufficient beyond ½ in. thickness to warrant a filler, a grout composed of one part Portland cement and two parts clean, coarse, sharp sand may be used. The mixed Stonpach is then placed over this grout.

When Stonpach has set to a point where it will not stain with water it



Explanation of the construction of Kreolite Flexible Strip End Grain Wood Block Floor, manufactured by Jennison-Wright Corp.:
(A) metal wire truss binding the individual blocks into a compact solid monolithic end grain plank or strip;
(B) metal spline binding the individual strips together;
(C) expansion joint laid flush with the surface of the floor;
(D) flexibility—follows surface of subflooring;
(E) waterproof coating between concrete and strips;
(F) smooth finish concrete foundation;
(G) smooth machine surfaced during manufacture;
(H) manufactured from kiln dried yellow pine;
(I) treated with a colorless, ordorless, waterproofing preservative so that the natural light color of the wood is maintained; and
(J) laid with the tough end grain up. End grain blocks run full depth of strips, from top bottom, each block being anchored to the base in a bed of mastic.



Robbins Ironbound Continuous Strip flooring is hard maple as laid in the pressroom of the Mansfield (O.) *News Journal*. This type of flooring material is designed for heavy duty installations. It is claimed by the sponsor to be shock absorbing to prevent breakage and damage due to objects falling on the floor. This Ironbound hardwood flooring is furnished in narrow-face strips, laid one at a time in panels, interlocked with long saw-toothed steel splines designed to prevent shifting.

should be covered with clean burlap or other suitable material and water cured for a minimum of 24 hrs. Where it is used for extreme conditions such as would occur where mild acids are used, a curing period of 48 to 60 hrs. is recommended.

The Stonhard Company states Stonpach cures out to the same color as concrete and dries without shrinking, leaving no cracks from which disintegration can set in.

Paper Warehouse Floors

A semi-plastic compound, called Stonhard Resurfacer, which is mixed with Portland cement and clean sharp sand to form a resilient surfacing material, is recommended by the Stonhard Company where a floor is to be used for storage of paper and for warehousing. It is not suitable for areas exposed to grease, oils, fats, acids, alkalies or constantly running water.

The Resurfacer can be used as a patching material to eliminate small or large worn areas in aisles, stairways, sidewalks and other places where only limited time may be allowed for repairs. Under normal conditions setting time is 36 hrs. after installation.

It can be applied to concrete, wood, brick, asphalt or composition floors. As a topping for worn and splintered wood floors, the mixed surfacing material can be laid up to ½ in. thickness resulting in a fire resistant surface. Sponsor claims the Resurfacer provides a non-skid, non-chipping surface that is warm and dry underfoot.

Rough, worn and rutted concrete floors may be repaired with the compound without breaking, roughening or chipping of base surface. To apply the Resurfacer, the dirt must be first swept from the rutted areas. Two coats of Stonhard Resurfacer Primer must be applied on the surface being repaired. The mixed Resurfacer is then spread into the ruts or over the surface to a thickness of ½ in., feather edging where necessary. Where faster setting is required, Stonhard Resmix is used for mixing with the Resurfacer instead of cement.

Wood Block Flooring

Two different types of wood block flooring are recommended by the Jennison-Wright Corp., for use in composing rooms, pressrooms, mailing rooms and binderies of commercial and newspaper printing plants. The Kreolite Grooved Blocks, made of either yellow pine or end grain Upland oak, are designed for use under all general conditions, wet, damp or dry, for both inside and outside service.

Kreolite Kountersunk Lug Blocks, available in yellow pine or end grain Upland oak, are suitable for use under dry interior conditions. The oak blocking is recommended by the sponsor where extremely heavy traffic is encountered or in aisleways and floors subject to abnormal use. Both types of this blocking are impregnated under pressure with Kreolite Creosote oil. The usual depth of the blocks varies from 2 in., 2½ in. to 3 in., but the depth should be determined by an experienced engineer according to the intensity of traffic.

Kreolite Flexible Strip End Grain wood block are of a light, natural color. It features a galvanized steel wire truss embedded in the side surfaces of the strips, forming a continuous type of flooring. The blocks are impregnated with a colorless and odorless preservative that does not stain the wood, or with waterproof Kreolite oil, if desired.

This type flooring is made from kiln dried Southern yellow pine, not over 2 in. by 4 in. in cross section, and assembled in flexible strips 2 ft. to 8 ft. in length. Flexibility permits the strips to conform to the contour and deflections of the subbase. The strips show end grain only, on both top and bottom surfaces.

The Jennison-Wright Co. states a Kreolite wood block floor will absorb some moisture, resulting in paper stock being kept in better condition. It is claimed the blocks wear slowly and uniformly over the entire surface and do not disintegrate into ruts and holes. Further claims attributed to this type flooring by the sponsor are that it is easy to truck over, and is warm and comfortable to work over at any season of the year.

Hardwood Flooring

Hardwood industrial flooring, usually maple, although sometimes available also in beech, may be obtained in several standard forms. Strip flooring, the type most commonly seen, comes in varying lengths and usually in two face widths, 1½ in. and 2½ in. It is usually available in two thicknesses, $^{25}/_{32}$ in. and $^{33}/_{32}$ in., with edges and ends matched. The same material is also furnished in short lengths which can be laid in herringbone or other desired pattern. It is also available in assembled blocks or squares, these usually about 12 in. by 12 in. dimension for industrial use. In most installations these hardwood floorings are laid in a bed of mastic.

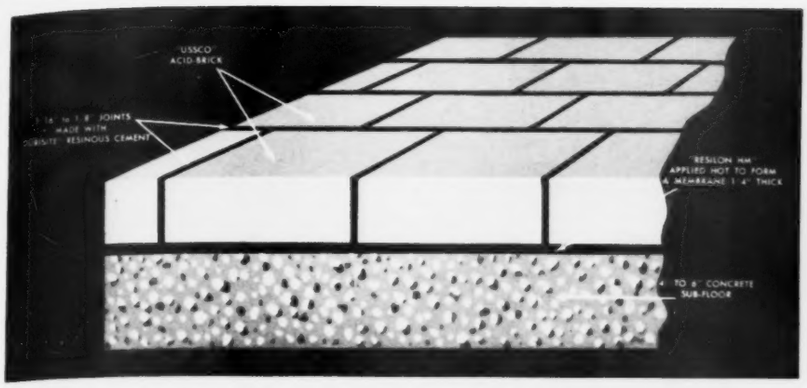
Expansion and contraction must be taken into account for all wood floors, particularly for flat or edge grain material. Ample allowance must be made at all edges to accommodate expansion or swelling. It is in connection with this inevitable floor movement that floors tied together with metal strips or binders hold an advantage over loose or individual strips or blocks. Under expansion the loose strips may move outward but fail to return as the material contracts or shrinks. When this happens some of the joints in the flooring may open up unduly and remain so.

Ironbound Floor

According to the Robbins Flooring Co., the floor in a printing plant should withstand heavy service and should wear smoothly without leaving high ridges. It should be shock absorbing to prevent breakage and damage due to objects falling on the floor. Other requisites are long service, restful to workmen, nonslippery and easy maintenance.

Claimed by the sponsor to meet all these requirements is Robbins' Ironbound Continuous Strip in hard maple. The thickness of the wood determines the degree of shock resistance. Generally, a printing plant should not use anything thinner than 1¼ in. and many of the printing plants use 1½ in. and 2 in. thick material. Edge grain flooring should be used for all but light duty installations.

This Ironbound hardwood flooring is furnished in narrow-face strips, laid one



A cross-section drawing showing the installation of U. S. Stoneware Co.'s corrosion-resistant brick floor for use in etching and plating rooms. After the floor membrane has been applied over the concrete sub-floor, the acid-proof brick or tile is installed on top. The joints between the bricks are made with U. S. Stoneware's Durisite acid and alkali resistant resinous cement. As they are laid, the bricks are buttered with a thin joint of the Durisite.

at a time in panels, interlocked with long saw-toothed steel splines designed to prevent shifting. When required, sections may be removed for replacement. It is available in $^{33}/_{32}$ in., $1\,^1/_4$ in., $1\,^1/_2$ in., 2 in. and $2\,^1/_2$ in. thicknesses and face widths of $1\,^1/_8$ in., $1\,^3/_8$ in. and $1\,^3/_4$ in.

Abrasive Floor Plate

An abrasive rolled steel floor plate called A. W. Algrip, manufactured by Alan Wood Steel Co., is recommended for use where a non-slip flooring surface is desired and where heavy printing plates are handled, such as in newspaper or commercial pressrooms. An abrasive grain, the same type used in grinding wheels, is rolled as an integral part into the upper portion of the steel floor plate.

Typical applications of this abrasive floor plate are on loading platforms and ramps, elevator floors and sills, steep inclines, cat-walks, engine room floors, etc. It can be installed in small areas as well as entire floors. Algrip can be sheared, flame cut, drilled, punched, beveled or flanged to fit the desired space. It is available in gauge thicknesses from $^1/_8$ in. up to $^3/_8$ in., a width range from 24 in. to 60 in., and 120 in. to 144 in. lengths. Sponsor claims the non-slip properties of the floor plate are present under both wet and dry conditions.

An Abrasive Floor Plate of Different Design

Another type of floor plate which provides a non-slip, long-wearing floor, even under oily conditions, is made by Wooster Products, Inc., and called Wooster Abrasive Cast Floor Plates. The material which is known as Ferrogrit, is designed for installation around heavy equipment of all kinds, especially newspaper presses.

These plates can be installed over concrete or wood floors, or used as complete structural units, reinforced with heavy ribs, between stringers or beams. They may also be applied to fresh concrete floors by the use of anchors.

Wooster plates are cast from an iron of pearlitic structure. Anti-slip abrasive grits are integrally cast into the metal matrix to a minimum depth of $^1/_{16}$ in. Surface patterns are crosshatch, which is standard or plain. Edges are smooth and square, which is standard, or beveled. Ferrogrit plates are sand blasted and given one coat of black paint. Alumogrit plates are furnished with sandblast finish.

Sponsor claims the anti-slip feature of Wooster plates is not affected in any way by oil, soap or other lubricants. Old floors can be repaired by installing the plates over worn areas without tearing out the complete floor system. It is also claimed they are not subject to rapid corrosion caused by water or soap compounds.

Plates are cast to a maximum width of 37 in. Lengths vary from 3 ft. to 6 ft. depending on job requirements. Floor, platform and landing plates are cast in thicknesses from $^1/_2$ in. to 1 in. Wooster trench plates provide protection for pipe and conduit lines, and an anti-slip surface which assures safe traffic over areas intersected by trenches, gutters or pits. They have the same general features as Wooster floor and platform plates.

Floor Tile

Recommended for all around use in the commercial and newspaper plant is Amcolun Safety Tile which provides protection against slipping and is manufactured by American Abrasive Metals Co. This floor tile is compounded of abrasive material (aluminum oxide) and bonded together with a thermo-setting phenolic resin under heat and high pressure.

According to the sponsor, the tile is not affected by moisture, or extreme cold. It is not attacked by oils and greases, common detergents, lactic or citric acids, and resists most other acids and alkalies. The company also claims it is highly resistant to cracking from shock impact.

For application over the existing concrete floor, a $^3/_{16}$ in. thickness tile is recommended. It is necessary that the floor be thoroughly cleaned before laying the tile, removing all loose dirt, scales, etc. The tile is embedded in a latex rubber cement in accordance with the manufacturer's instructions. American Abrasive Metals also has this type of floor tile available with a rounded edge for stair tread installation.

Acid Proof Floors

One of the toughest problems in selecting floors for the different departments in the printing and/or publishing plant is to find one that will stand up indefinitely (by comparison with other departments) in the photo-engravers' etching room or in the plating department of an electrotype or stereotype plant. Acids used in these departments are nitric, iron perchloride and chromic. Many highly talented chemists, engineers and flooring specialists have devoted much time and effort to the problem. In some plants, concrete floors are covered periodically with a fresh coating of asphaltum as required. Constant watchfulness to detect honeycombed or disintegrated floor surfaces about the etching or plating machines is required. In such plants wooden slat catwalks are provided upon which the workmen tread while attending to their duties.

U. S. Stoneware's Corrosion-Resistant Floor

The U. S. Stoneware Co. manufactures a corrosion-resistant brick floor for use in etching and plating rooms. This corrosion-resistant brick floor serves two functions of practically equal importance, says the maker: (1) To protect the subfloor and its structural supports from untimely corrosive destruction, and (2) To provide a floor of much greater durability in the face of exposure to acids, alkalies, water and heavy traffic.

U. S. Stoneware states: "Strictly speaking, no floor can be made acid (or acid and alkali) proof, any more than a tire can be made skid proof or blowout proof. But properly constructed of suitable materials, floors can be made with such a high degree of corrosion-resistance and with such rugged physical properties, that they will serve many years without repair expense . . ."

Four elements are taken into consideration when constructing a U. S. Stoneware corrosion-resistant brick floor. These are the concrete sub-floor, the membrane laid on top of the cement floor, the bricks, and the jointing compound used between the bricks. In laying the floor, the cement sub-floor is first cleaned and primed with a coat of Resilon primer to seal the pores. The Resilon HM membrane is then applied either in bulk form by spreading $^1/_4$ in. thick over the cement floor while melted, or Resilon sheet membrane in factory-processed sheet form may be laid on the cement. Sheet Resilon, however, is used as a membrane only when corrosive conditions are unusually severe.

After the floor membrane has been applied, the acid-proof brick or tile is installed on top of the membrane. The joints between the bricks are made with U. S. Stoneware's Durisite acid and alkali resistant resinous cement. As they are laid, the bricks are buttered with a thin joint of the Durisite.

The manufacturer cautions that care should be taken to slope the concrete subfloor to the drains. If the slope (at least $^3/_{16}$ in. per ft.) is not provided in the subfloor, it is virtually impossible to make provision for adequate drainage.

Continental Job Recording

PRINTING Equipment Engineer is publishing this article about the Continental or Army-Navy Time (1–100 hr. units) system for recording time on various operations in Graphic Arts plants, because it seems to be a trend in the industry. Until recently, the 6 min. unit of time recording was used generally. It still is used in many plants. However, in view of the greatly increased hourly wage rate and the shorter work week, many Graphic Arts executives feel it is no longer adequate. The reason is that in some instances fractions of units, if charged to the customer, might constitute an unjust charge to the customer. On the other hand, should accumulative fractional parts of units be thrown off, an injustice is done to the firm doing the work.

The Continental time recording system was installed recently in the typographic composition plant of Kelley & Jamison, Memphis, Tenn. Before discussing its use in that shop, perhaps it would be in order to explain that the Kelley & Jamison plant is located geographically in a distribution center of considerable importance. But relatively few manufacturing plants headquarter there. Consequently, the composition work done by this firm ranges from a card to a telephone directory. Literally, thousands of jobs are handled—some of it is made up and a goodly quantity is delivered on galleys.

Fig. 1.

DAILY TIME TICKET

Name John Doe Employee No. 25

Machine No. 5 Total Hours Worked

Non-Chargeable	Chargeable	V	Job No.	Oper. No.	Clock Record
			13246	63	APR 12 12 02
			14177	63	APR 12 11 62
			13470	63	APR 12 10 64
			14278	63	APR 12 10 40
			13300	63	APR 12 10 25
			14730	63	APR 12 10 18
			13469	63	APR 12 10 00
			14287	63	APR 12 9 86
			14214	63	APR 12 9 78
				RING IN HERE→	APR 12 9 72

OPERATION NUMBERS

CHARGEABLE	NON-CHARGEABLE
MONOTYPE KEYBOARDS	
91 Copy Layout	94 Waiting for Copy
93 Composition	96 Machine Trouble
95 Office Corrections	98 Sorts for our cases
99 Sorts for Customers	
MONOTYPE CASTERS	
111 Recast	110 Stock Material
113 Composition	114 Waiting for Copy
115 Office Corrections	116 Machine Trouble
	118 Sorts for our cases
LINOTYPE DEPARTMENT	
63 Composition	60 Sorting up
65 Office Corrections	62 Casting Border or Blanks
	64 Waiting for Copy
	66 Machine Trouble
	68 Servicing Customer
TELETYPE KEYBOARDS	
73 Composition	74 Waiting for Copy
75 Office Corrections	76 Machine Trouble
TELETYPE CASTERS	
83 Composition	84 Waiting for Copy
85 Office Corrections	86 Machine Trouble
PROOFREADING	
53 Reading	54 Waiting for Copy
55 Office Corrections	
59 Holding Copy	
HAND DEPARTMENT	
1 Extra Proofing	4 Waiting for Copy
3 Wash press for color	6 Repairing
9 Reproduction Proofs	8 Distribution
5 Office Corrections	10 Filling Cases
11 Lockup	18 Breaking up Forms
13 Composition & Makeup	20 Preparing Ads for Paper
19 Assembling Type	22 Miscellaneous (describe)
23 Ludlow Composition	26 Sawing Leads & Slugs
25 Ludlow Office Corrections	28 Servicing Customer
29 Marked Copy clean out	
31 Special Operations (describe)	
MARKUP DEPARTMENT	
41 Prepare Copy	44 Waiting for Copy
43 Markup Original	46 Estimating
45 Markup Office Corrections	48 Servicing Customer
47 Markup Customer Alterations	
49 Markup Additional Copy	
51 Layout	

REMARKS:

Fig. 4.—At left is miniature front side reproduction of Daily Time Ticket used in plant of Kelley & Jamison Typographic Composition Plant, Memphis, Tenn., in connection with Continental time recording system. The ticket has been partially filled in hypothetically by John Doe to illustrate (a line-composing machine operator) its use.

In connection with the use of the Job Ticket shown on Fig. 5, the Time Tickets may be sent to the business office more than once a day so that the time on jobs may be posted on the carbon copy of the Job Ticket (Fig. 5) as rapidly as possible. The Daily Time Tickets are then returned to the composing room for further time recording. At the end of the day, of course, the Daily Time Tickets are sent to the business office to complete posting operations.

At right is shown reverse side of the Daily Time Ticket. Each kind of operation in the composing room is indicated by a number. The numbers are marked on the other side of the Ticket by the worker as his work proceeds with various kinds of jobs.

These Time Tickets may also be used as a payroll record.

Original size of the Ticket is 5⅝ in. by 11 in.

ACTUAL SIZE SPECIMEN TIME IMPRINTS FROM IBM JOB COST RECORDERS

M 8 22	6 9.0	MAY 6 2.76
Date....Hour..minute	Date....Hour..Tenths	Month...Date..Hour (0-23) Hundredths
M 8.0	6 2.55	1951 MAY 13 7.4
Day....Hour....Tenths	Date....Hour..Hundredths	Year...Month...Date...Hour...Tenths

Fig. 2.

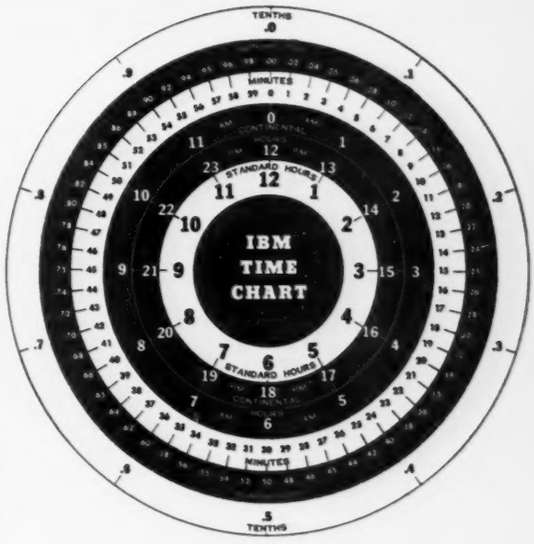


Fig. 3.

Handling such a multitude of small jobs compelled the firm to look into the time clock situation rather carefully. N. C. Jamison relates that during this investigation he talked to Oscar Hoffman of the Superior Typesetting Co., St. Louis, Mo., in which plant the Continental (1-100 hr. unit) was being used.

Mr. Jamison stated that the changeover to the Continental time recording method was rather drastic. Previously, the firm had been using a ticket on which the time for each operation was marked with a pencil.

"However," said Mr. Jamison, "the new system placed a great burden on the office which necessitated engaging additional help. The accumulation of time on the various jobs is a big item. Nevertheless, after having used this system for a time, we know it is best for us."

To help our readers understand the Kelley & Jamison operation better, it is explained that the firm has 11 Intertypes, five with quadding device and Mohr Saws. The firm also operates five Monotypes, one Ludlow and two Elrod strip-casting machines. Six Hammond Glider saw-trimmers are used as well as power mitering machine equipment.

Most jobs in the Graphic Arts industry are "individual". That is, there's lots of work but by far the greater number of jobs to be produced are handled individually. Of course, there are some jobs that lend themselves to mass production methods but the great majority do not. Thus complete and accurate cost records are of vital importance.

Records of the exact time spent on each job or operation—the bases for true cost records and precise estimates—are mandatory for the efficient and profitable running of a plant. Since time is one of the most important factors in the production of composition, platemaking, presswork, or binding, a precise method of recording the time is essential. The simplest, fastest, and most accurate means of job time recording is by machine. This fits right in with the general trend in the Graphic Arts industry with its streamlined machines together with ease, speed, and accuracy of production.

Many plants, particularly in the composing room, are employing job time recorders (similar to that shown in Fig. 1) for determining the elapsed time for each job or operation, such as hand or machine typesetting and makeup and lockup.

Operation of these machines is simple. The operator inserts his job card or ticket in the proper On or Off (Start or Stop) position, and the date or day and time is printed automatically in the proper space. There are several variations of the time printed by these recorders depending on the needs and choice of the individual plant. Illustrated in Fig. 2 are specimen imprints from IBM job cost recorders employing conventional time (1 to 12 and 1 to 12 hours

Deliver to
Address
Job № 14420
Charge to Superior Press
Address
Name of job Brotherhood Bulletin
Copy Received APR 12 12:08
To Markup
To Machine
To Hand
To Proofroom
Delivered
This Job ☐ Should ☐ Must Be Delivered By Mon. Noon
☐ Type Only ☐ Correct Only ☐ Linotab ☐ Customer-Linotab ☐ Cut Border ☐ Strip Border ☐ Foundry Lockup ☐ Set Hold Type Slug ☐ Phone Copy
☐ Makeup ☐ Daily Papers (.....) ☐ Other Papers (.....) ☐ For Electros ☐ For Mats ☐ One Side ☐ Two Sides ☐ Two Colors ☐ Poor Copy
☐ Etch Proof ☐ Proofs and Type ☐ Group Space ☐ Space in Position ☐ Set Rules ☐ Cross Rules Only ☐ No Rules ☐ Cutting # ☐ Rough Proofs First
Customer's No. 34270
☐ No Charge
☐ Cust. Alts. ____ %
☐ Priced ☐ C.O.D.
☐ Outside Purchases
SPECIAL INSTRUCTIONS:
Partial Deliveries
METAL RECORD
Total Weight
Cuts
Returned Metal
NET WEIGHT
Stock Size ____ in. wide x ____ in. deep
Form Size ____ ems wide x ____ ems deep
Returned Type Stored In ____ Stored In ____
REMARKS:
TYPE FACES

30	24	18	14	12	10	8	6	5½	
			Bod			Rock			☐ LUD
36					Rock	Rock		5	
42								4	☐ HAND
				SET					☐ MONO

34

Fig. 5.—This illustration shows miniature reproduction of Job Ticket employed in the plant of Kelley & Jamison, Typographic Compositors, Memphis, Tenn. Size of sheet is 8½ in. by 11 in. The original copy is 13 lb. green bond. The duplicate is same weight white bond. The original (green) sheet (printed one side only as shown in Fig. 5) goes with the copy to be set in the composing room. As work on a given job progresses, the green sheet follows closely. When the job is completed the original green sheet goes with proofs to the business office.

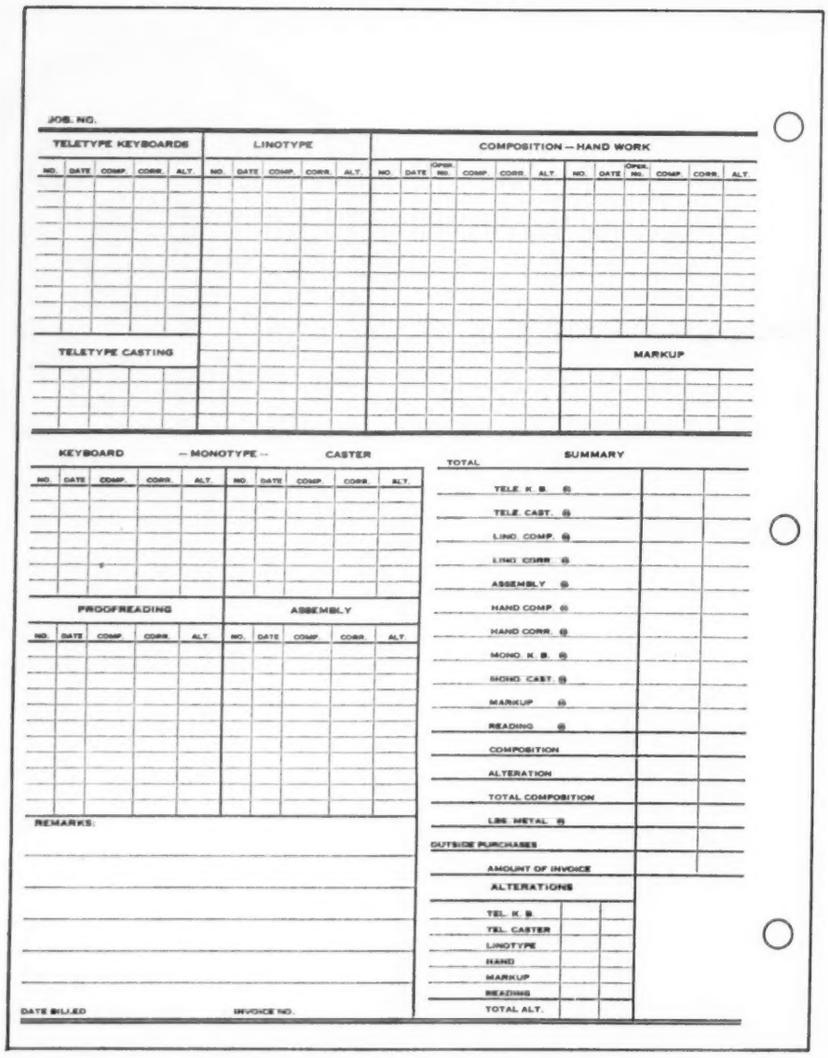


Fig. 6.—As is explained in Fig. 5, the Job Ticket (green) is filled out in duplicate. As has been explained previously, the green ticket is printed one side only. The duplicate or white copy is sent to the business office and is placed in a binder. The reverse side of the white duplicate is shown in this Fig. 6. Now, as the Daily Time Tickets come into the business office, the time for the various operations in any given job is posted on the white sheet in this Fig. 6. As Mr. Jamison expresses it: "As the time is posted by departments a pin-point picture of the time involved in any job is furnished."

and minutes) and Continental Time (0 to 23 hours) and 10ths or 100ths of hours. The latter method of recording job time (0 to 23 hours and 10ths or 100ths) has been increasing in the last few years. Much of this popularity is due to the use of Continental or Army-Navy Time in the armed forces. This means of time indication and recording eliminates a.m. and p.m. denotations. Zero (0) is equivalent to 12 midnight, and hours are numbered in sequence to 23, twenty-three (23) being equivalent to 11 p.m. The chart illustrated in Fig. 3 shows a comparison of conventional (1 to 12 and 1 to 12 hours) and Continental (0 to 23 hours) as well as minute equivalents in 10ths and 100ths of hours.

Aside from the elimination of the designations a.m. and p.m., the use of 0 to 23 hours and 10ths of 100ths in job time recording provides a simple subtraction method of computing elapsed time for each job or operation. For instance, assume a man records On a certain job at 10:36 a.m. and Off the job at 1:24 p.m. By conventional time standards (1 to 12 hours and minutes), a little mental gymnastics is necessary to figure the elapsed time of 2 hours and 48 minutes. By the use of 0 to 23 hours and 100ths, the On time (10.60) is directly subtracted from the Off time (13.40); elapsed time is 2 80/100 or 2.8 hours. Job costs then are simply computed by multiplying the elapsed time by the rate.

This is the simplest means of computing accurate job costs and one which is being adopted by many shops. For instance, Kelley & Jamison installed several IBM Job Cost Recorders equipped with 0 to 23 and 100ths hours type wheels. By this method legible, indelible time records and exact job costs are obtained, and computation of elapsed time for job and operation costs are simplified.

Mechanically-made job time records constitute a big step toward greater efficiency in every plant in computing time, determining costs, billing and estimating, and on the production line. The employment of 0 to 23 and 100ths provides the basis for increased simplicity and accuracy. Pencils and paper are cheap but they don't give the advantages of these mechanical timekeepers in accuracy and time and money saved.

Mr. Jamison summed up the opinions of himself and associates as follows: "We like it because it pin-points every operation. It keeps the work moving—there is little lost time. Use of the 1/100 hr. unit breaks up every operation accurately.

Book Protection from Insects-Molds

M. S. Kantrowitz, Chairman, Research Committee, Washington (D.C.) Club of Printing House Craftsmen

ALTHOUGH much progress has been made in the past few years toward the protection of books against the ravages of insects and the prevention of molds, especially in tropical climates, it is felt that considerable work is yet to be done before this goal is completely achieved.

We do not know of any definite specifications for insect-proofing a book as a whole, but we are aware of the protection afforded by certain bookbinding materials which enter into the making of a book. It is possible to produce handmade books with the entire use of materials which do not serve as food for insects. Such books would be relatively free from insect attack, including roaches and silver fish, as well as being immune to the formation of bacterial molds.

Some types of resistant bookbinding materials may be listed as follows:

Book Cloth: Plastic treated book cloths such as pyroxylin or vinyl coated of impregnated fabrics or similar plastic treated fabrics.

Sewing Thread: Nylon sewing thread. This may be used successfully on Smyth sewing machines.

Adhesives: Polyvinyl acetate emulsion type resinous adhesives for casemaking, gluing-off, lining-up, and casing-in.

Paper: A preferable choice of papers which do not contain starch, casein, or other fillers which are attractive to insects for food.

Books produced from such materials will be as insect-proof as present knowledge can make them.

The use of insect poisons or mold inhibitors in book cloths, papers, and adhesives has never proven successful for preventing insect attack upon books. Eating must be done, with its consequent damage to the work, before the insect is poisoned and destroyed. Therefore, the only efficient way of preservation is to use materials not attractive to insects or conducive to forming molds.

Please take a look at your address on the wrapper in which *Printing Equipment Engineer* is sent to you at your place of employment. If it isn't correct, please tell us about it on a postcard.

Research and Engineering Council Now on High Road

PRESIDENT Frank F. Pfeiffer of the Research and Engineering Council of the Graphic Arts Industry, Inc., made a very interesting and encouraging announcement recently. The statement was made immediately following the April meeting of the Council's executive committee in Hot Springs, Va.

Pfeiffer said: "The Research and Engineering Council has now developed an annual income of $22,500, practically all of which is on a three-year basis. He also announced that since the Graphic Arts industry appeared to be interested in supporting the Council financially, that the activities of the Ways and Means Committee would continue its activities in securing additional underwriters.

At the executive committee meeting, Vice President Edward J. Triebe, who is also chairman of the Ways and Means committee, submitted a report in which were listed in detail the 36 Association, 131 Company, 17 Individual, and 7 Trade Paper memberships obtained by the committee. Chairman Triebe's report covered 335 individual representatives, and totalled 191 members who have subscribed to the new membership plan. Chairman Triebe's committee, as announced by President Pfeiffer, will continue its activities.

Full Time Manager

Encouraged by the substantial support of the industry, the executive committee made the important decision to engage a full-time managing director. Announcement of the selection of the manager will be made later.

Honorary Members Selected

Three men, prominent in the Graphic Arts industry who have been greatly interested in the organization and progress of the Council, were elected to honorary membership. These are:

William Baumrucker, jr., Chairman of the ANPA Research Committee, also Production Mgr. for the Washington (D.C.) *Times-Herald*.

Wade E. Griswold, Executive Director, Lithographic Technical Foundation.

Morris Kantrowitz, Technical Director, U.S. Government Printing Office, Washington, D.C.

Membership Details

Aside from the regular company or association membership requirements, the executive committee considered the basis for individual memberships. It was recommended that a class of membership be established in which a representative from a *company-member* could become an individual member and receive all Council mailings and one free copy of future Council publications based on a membership dues of $15 per year. Individuals from non-member companies, however, will be required to pay dues of $100 per year. Individuals who are employed as members of the staff of Association members may take out individual membership at $15 per year.

Treasurer Reports

Joseph Schwartz, Council Treasurer, reported a balance available in the treasury of $21,442.20. Through President Pfeiffer, the executive committee expressed its appreciation for the excellent work done by Mr. Schwartz as treasurer.

Council Publications

Bernard Snyder's Committee on the Council Publications has adopted and the plan has been approved for the sale of various Council bulletins on technical subjects. A promotion piece has been printed and is ready for distribution to the industry. Promotion of the Council Bulletins will be made through the trade press, by personal contact and by mailings.

Next Committee Meeting

It was decided that the next meeting of the Planning, Publications and Executive Committees will be held in Cleveland on June 4, 5 and 6.

Proposed Investigations

The project, RS3 Research and Engineering activities report, will be completed to conform to proposed publication date in June 1952.

A proposed project on standardization of paper whiteness will be presented to the committee.

The Council agreed to offer its facilities as a consultant or as a clearing house to a proposed project which may be sponsored jointly by Printing Industry of America, Inc., National Assoc. of Magazine Publishers, American Assoc. of Advertising Agencies and the American Assoc. of Photo-Engravers.

Craftsmen Graphic Arts Education

THE Graphic Arts Education Committee headed by Byron G. Culver, Rochester (N. Y.) Institute of Technology, is surveying possible areas of collaboration among the Education Council of the Graphic Arts Industry, the Intl. Graphic Arts Education Assoc. and the Intl. Assoc. of Printing House Craftsmen, Inc. The primary aims of the Graphic Arts Education Committee are:

(1.) To correlate and help to improve various educational and training efforts in the Graphic Arts.

(2.) To carry on approved projects of mutual interest to member organizations and make duplication of effort and expense unnecessary.

(3.) To conduct surveys and make studies leading to the improvement of Graphic Arts educational activities and facilities.

(4.) To promote the publication of material serving the general objectives of the Council.

The Graphic Arts Education Committee realizes that although the Assoc. is chiefly concerned with improvement of personnel in the industry at the foremanship level and above, it is nevertheless also interested in Graphic Arts education as a whole.

The ABC of OFFSET

For Letterpress Printers

Series Two

By George Jos. Lenzer

V—NEGATIVE RETOUCHING AND CORRECTION

IN discussing Negative Retouching and Correction, we will consider each operation or process in line of importance. The simplest of these post camera operations is *Opaqueing*. In some instances, this is the first operation performed after a negative has been released by the cameraman. It is an important job, and must be carefully executed. Carelessness at this point, as at any other stage of operational procedure, can result in costly and often irreparable damage to the finished job.

The term, Opaqueing, covers several separate designations such as spotting, ruling, cropping with possibly some engraving. It requires some skill in lettering and drawing, and a developed ability to read proof.

Since chemical manipulation is not a requirement, we will confine our discussion to the manual aspects of this operation which is dependent to a great extent upon the cleanliness of the darkroom and surroundings.

Good Housekeeping Important

In previous discussions of photographic operations, we stressed the importance of good housekeeping and the costly post camera operations due to the lack of cleanliness. It will be recalled that chemical dusts and atmospheric contaminants will cause pinholes and other forms of damage.

So that a clean reproduction may be produced, these pinholes and other damaging defects must be eliminated and corrected during this operation of Opaqueing.

Opaqueing Materials

The materials used in this operation are several and varied, each tending to serve the specific purpose of blocking out or preventing the transmission of activating light through the pinholes, defects or other areas which are not to be reproduced. This is Opaqueing.

Opaques

Water soluble opaques are obtainable under several trade names and many are the results of private experimentation, and are homemade. They follow several different trends, in body, color, composition and utility. Some are white, while others are red, grey or black.

The most commonly used, and frequently the most troublesome is a red opaque made of iron oxide or jewelers' rouge, and similar solids. This type of opaque must be thinned carefully for the best results. If it is too thin, it is frequently ineffective as an opaque, and if too thick, may pile up, causing a resulting distortion of film or possible breakage of a glass plate. Several brands of this opaque have an added and incorporated dye, which adds to the efficiency of this material as an opaque.

Graphite

Graphite opaque is preferred by some operators because of its nature and smoothness of application. This material is little known or understood by opaquers and retouchers. It is felt that some thought should be given to this material.

As an opaque, the flakey powder is emulsified into a thick paste which must be reduced or thinned with water to a working consistency. It is recommended that distilled water be used exclusively for thinning this type of opaque. Raw tap water, in some instances, has a tendency to destroy the natural ionization of the substance.

When properly thinned, and applied to the negative emulsion, the thin flakes of graphite settle out of suspension and are deposited on the negative surface in thin layers of overlapping flakes which are magnetically attracted to each other and to the metallized emulsion on the photographic film or plate.

It is important that this type of opaque be properly thinned at all times, and should be tightly sealed in the jar when not in use. If the paste is permitted to become dry in the jar, it is a total loss, because it cannot be redissolved in water.

When improperly cared for, graphite opaque after application to a negative or positive, frequently has a tendency to reticulate, crack and fall off the surface it is supposed to protect.

Being a lubricant, the graphite will shed water like any other oily substance, with this exception, that it will not resist friction. In this respect, graphite serves a dual purpose—as an opaque and a staging solution. It must be remembered that when so used, graphite opaque cannot be rubbed with cotton or other material, lest its opacity be reduced, during chemical manipulation and while under water.

After the opaque has dried following its original application to the gelatin emulsion, it loses some of its natural magnetism and is easily dislodged or partly removed from the surface by subsequent wetting and rubbing. This does not mean that it will be entirely removed by washing with water. The bottom layers of graphite flakes will be firmly attached to the emulsion, leaving a form of graphite stain which can only be removed with a solvent such as benzol or naphtha.

Dry graphite powder and lead pencils

(*Continued on Page 77*)

Roy Advocates Graphic Arts Engineering Develops New Hand Composition Methods

DR. Robert H. Roy advocated the application of engineering principles in Graphic Arts plants in general in an address delivered before the Mid-Atlantic Mechanical Conference, Philadelphia, in March. Dr. Roy is Associate Professor of Engineering at Baltimore's Johns Hopkins University, Baltimore, and is a Consultant to Lanston Monotype Machine Co. In advocating engineering analysis for the Graphic Arts industries, he said their adoption has resulted in improvements in manufacturing techniques and in economies of great magnitude in countless other industries. He said: "The Graphic Arts industry, and I include in this category newspaper plants as well as commercial printing plants, generally speaking has not seen fit to use such engineering techniques, and has therefore fallen somewhat behind other industries in the calibre of its technology. Newspaper production, magazine production, and commercial printing are in the last analysis nothing but manufacturing and the same kinds of engineering analysis that have succeeded in other fields of manufacturing are just as applicable here."

Dr. Roy discussed a number of engineering studies he undertook while employed in the commercial printing industry over a period of years. During this time he worked in staff relationship to the line organization. His job was to analyze the manner in which operations were carried out with a view of devising better ways of doing them and effecting improvements wherever such improvements appeared to be possible.

An abstract of his address is as follows:

ONE of the projects concerned an investigation of first corrections on galley proofs in this establishment. As the study began it quickly became apparent that something was radically wrong, for some 98 per cent of all of the proofs that were corrected in first corrections had to be returned to the composing room for repetitive second corrections. The incentive plan (in use in the plant) inadvertently provided workers with motivation to do a large quantity of work carelessly, rather than to do a smaller quantity of work very carefully. Discovery of this led to preparation of a flow sheet showing the wastefulness of the cycle for second corrections, not merely in the consumption of unnecessary operator and proofreader time, but in the attendant delays to the composing room and from thence back to the proof room.

Preliminary studies were made of the possibility of compositors doing corrections accurately and it was very gratifying to discover that the simple process of having the compositor make the corrections and then having him, as a separate operation, carefully inspect the corrections that he had made would result in an extremely high degree of accuracy.

Investigation Reveals Benefits

The incentive accordingly was changed from a quantity basis to a quality basis and, again with some effort necessary to solve human relations problems, the transition effectively was carried out. At the time of the original investigation some 87 hours were required to clear a proof from keyboarding to galley mailing. But after the investigation and the change in motivation had been effected this figure was reduced to approximately 45 hours. Most of the saving in this case was not in operation time, since second correction requirements were relatively modest in point of operator time, but in the diminishing of the temporary storages and delays that existed while the proof was awaiting moves from and to the composing room and proof room.

In many engineering investigations of this kind advantages that are not looked for at the outset invariably accrue and add to the profit of the investigation. So it was in this case. Attainment of approximately 98% correction accuracy did not merely wash out the second correction cycle, but also made it possible to combine in rapid sequence both first corrections and collation, a circumstance which yielded yet another elimination of a cycle of proof room and composing room operations.

New System of Hand Composition

The third development concerns a new system of hand composition. Some years ago I began to speculate on the fact that conventional type cases in use throughout the trade had their origin in size and general layout many, many years ago, certainly before the development of modern composing machines. At the time that such type cases were first devised, their chief requirement was to yield to the compositor a large variety of type, apportioned approximately according to the use of each character. In those days, all type was set and distributed by hand in commercial printing plants and in newspaper plants as well. The compositor would stand at his frame for a long interval of time composing stickfull after stickfull of type without changing from one type face or type size to another.

Present day requirements, at least in commercial plants, are quite different from this. *Hand composition has been reduced to an adjunct of machine composition* and a very large amount of type is used in the making of corrections in machine composition—at least this is true in Monotype plants. As a consequence of these changes, volume of type is no longer the principal requirement, but variety is.

Old Style Type Case in Perspective

There is a second attribute of conventional type cases which requires examination. Such type cases are never emptied or cleaned out but rather acquire many wrong characters in the various compartments by two means: One by the compositor dropping a type after he has picked it up to insert it in his stick or galley. In this case the jumbled arrangement of the letters does not permit him to find the mistaken letter unless his eye happens to mark the exact position in which it fell. Second, because these cases are never emptied or cleaned out but simply have sorts added on top the letters already contained in the case. Frequently this causes letters to spill over from one compartment into another. Everyone familiar with composing operation can readily recall the characteristic motion of a compositor reaching for a wanted letter, finding one that is thicker or thinner than the one he desires, and casting it aside with a characteristic jerk of his wrist.

Some years ago I had the hobby of setting type at home and then having the resulting pages printed in the plant where I worked. At one time, in setting the pages for a small book, I began to speculate on these deficiencies that I have just described and to consider how they might be avoided by changing the design of the type case and the arrangement of the letters and characters within the various compartments. This speculation originally led to the conception of making smaller type cases that were multiples of conventional type case size.

The New Style Type Case

This type case measures approximately 9 in. by 25 in. by 1 in. high, in contrast to the conventional size of 16 in. by 32 in., which appears to have been in the trade since the 16th century. The particular size was chosen because these cases fit into standard triple column galley cabinets. The case itself is not made up of egg-crate compartments but of plastic boxes into which the type is loaded in uniform rows

Interested in the demonstration of the Fairchild Scan-a-graver at the recently held Mid-Atlantic Newspaper Mechanical Conference in Philadelphia are, from left to right, Lloyd P. Burns, Executive Secy., New Jersey Press Assoc., and Theodore A. Serrill, General Mgr., Pennsylvania Newspaper Publishers Assoc. Demonstrator at the machine, which was on display at the Conference's mechanical exhibit, is Mrs. Naomi W. Zaslow.

with the face away from the compositor and the nick to his left.

The characters in the type case are in alphabetical order. There are dividers running each way in the case to provide a signal to the eye and break up the pattern of boxes. Some of the boxes in each case are in a different colored plastic from those of their neighbors. This too is for the purpose of providing a cue by which the eye of the compositor is guided to the letter he desires.

Point Thickness Spaces

Accompanying these new type cases new space cases were designed as well. In these, spaces were taken out of the type cases where they have been for so many years and put in separate trays. The spaces provided in these cases are in points and half points and not in fractions of an em as has been conventional practice for so many years. We have demonstrated, to our own satisfaction, at least, that the mental arithmetic of spacing with spaces that are fractions of a point is far more facile than similar mental arithmetic with spaces that are three to em, four to em, five to em, etc.

Composing Frames to Suit

Along with these new type cases new composing frames were designed. Prior to the design of these composing frames careful studies were made of compositor preferences in terms of height, width, angle, reach, etc. Beneath the frame each compositor has available to him not 24 or 48 type cases as provided in conventional equipment but 192 cases in the pair of frames that are side by side. This comprises in this particular plant a case of every face below 12 pt.

Adjustable Height Work Surfaces

Preferences for different heights of working surface expressed by tall and short compositors have been provided in the composing frame itself. Accordingly, the frame has been mounted on jacks for adjustment to comfortable working height. As a compositor comes to work, by simply turning the crank he may raise or lower his side of the work place to his own convenience. Other features of the frame include a gutter contained along the lower edge for sorts and pi and rather unique indirect lighting. In the trough above there are three 40 w. flourescent tubes which shine upward into the reflecting hood and give soft, well-dispersed light on the working surface. Under the cowl there is an additional 40 w. flourescent tube shining through flashed opal glass to give the necessary diffusion. The soft, relatively glareless lighting, of from 50 to 80 foot candles intensity, has been quite satisfactory.

Getting Compositor Cooperation

Attempts were made to get compositor participation in this development. To my mind, this was a most important part of what we sought to do. We realized that in a traditional craft like hand composition there would be deep seated opposition to changes from work methods which had been employed for so many years. Accordingly, each compositor was asked at several steps of the way to express his preferences, and to advance his suggestions for improvement of the new design. The space case was designed from such a suggestion, the fluorescent tube under the cowl was proposed by a compositor, and the galley tilter also was suggested by another worker. This simple but ingenuous device permits a compositor to tilt a galley at that angle which yields optimum illumination for corrections, or to tilt it beyond the horizontal for the insertion of an initial letter or some run-in object on the down side of the galley. These were provided for every composing frame and received very active use by all of the compositors.

To accomplish a gain in speed resulting from use of the new type case it was necessary to institute a fairly comprehensive training program. Composition speed improved markedly throughout the trial experiment and the number of errors resulting during this test composition dropped and touched zero on the last two occasions. Indexes of composing efficiency were kept by this plant for all of its compositors and between the time of introduction of the new composing system and its fulfillment after training of compositors, there was gain of 26% in the output of the department.

Automatic Shoulder Spacing

At the time this new type case was under development, we learned that the Lanston Monotype Machine Co. had provided a mechanism by which shoulder spacing could be adapted to the Monotype machine. This is a mechanism by which each word space may be cast as a shoulder of the first letter of each following word—the advantage of this method is that one gains approximately 16 per cent on the casting machine for the composition of straight matter.

Terminal Letter Correction

This very desirable gain, however, would be lost were it not for the development of a unique and ingenious system of correction developed by Wade Patton of the Lanston Monotype Machine Co. He observed that some 98 per cent of all English words end in one of 15 terminal letters. He suggested that by casting these terminal letters two units thinner than conventional letters one might effectively correct shoulder spaced composition, not by removing word spaces to diminish their thickness, but by changing terminal letters to thin terminals and thereby diminishing space between words just as effectively. After thoroughgoing tests of the possibility of this thin terminal method, it was adopted and its design incorporated in the new type case by inclusion of thin terminal sorts in the lower left quadrant of the new type case. This has been a most effective development and one that shortly will be marketed in the trade in general by the Lanston Monotype Machine Co.

News-Tribune Repeats Ayer Cup

FOR the second time in succession, the LaSalle (Ill.) *News-Tribune* has won the F. Wayland Ayer Cup for excellence in typography, makeup and presswork. More than 800 English-Language daily newspapers of all circulation classes were entered. It is said that this is the fourth time in the history of the 22-year competition that a newspaper published in a small city took top honors. Contest sponsor is the N. W. Ayer and Son, Inc., advertising agency, Philadelphia.

Judges in the contest were: Howard N. King, Vice President of Maple Press, York, Pa., 2nd Vice Pres. Intl. Craftsmen's Assoc., and Typographic Counselor to Intertype Corporation; Robert V. Ackerman, Columbia University Professor of Journalism, and Alvin Lustig, artist and book designer. This year, the judges (different ones each year) critized a trend among many daily papers to cut down on the white space between columns so that columns are "squeezed together" and harder to read.

The judges pointed out that the winning papers had front pages in which the various elements formed an attractive balance and overall design, that their use of headlines, body type and white space created an effect of crisp authority, and that all of them worked to get an interesting below-the-fold appearance on the front page.

"More photographs than ever before are being featured on front pages," the judges pointed out, "even though a few of the winning papers did not use front-page pictures."

The LaSalle (Ill.) *News-Tribune* was entered in the 10,000-50,000 class. Peter Miller is Publisher. John Barron, who is well known to many ANPA newspaper mechanical executives, is Mechanical Supt.

First honorable mention for newspapers of more than 50,000 circulation went to the Dayton (O.) *Journal Herald*. Second honorable mention went to the Los Angeles *Times*, a cup winner in 1937. Third honorable mention was awarded to the New York *Herald Tribune*. This latter paper holds two legs of the present cup and retired the first two cups by winning each three times.

Third honorable mention for newspapers of 10,000-50,000 circulation went to the Kingsport (Tenn.) *Times*.

In the newspapers of less than 10,000 circulation, first honorable mention was awarded to the Monessen (Pa.) *Herald*.

Honorable mention for tabloids regardless of circulation was given to *Newsday*, published in Hempstead, N. Y.

Production and Mechanical Executives are invited to submit to the editor informally in a letter devices which have helped production in their plants.

Equipment & Supplies

If you wish additional information concerning equipment, supplies and/or technical literature, please make your request to PRINTING EQUIPMENT *Engineer*, 1276 West Third St., Cleveland 13, Ohio.

ATF Sorts Service Plan

UNDER a new plan, American Type Founders has announced that service on sorts of 250 standard foundry type faces is now available. Sort orders may be sent direct to the ATF foundry at Elizabeth, N. J., by the customer.

In use, the plan works as follows: A type user may order a minimum of ten characters to be taken from a complete font of caps, lowercase and figures. ATF will remove the font from its factory stock, sort out the full quantity of each character desired, and ship direct to the customer the same day.

Cost of such sorts runs from a minimum of $3.35 in smaller body sizes to $10 for the largest sizes available under the plan. Additional characters from the same font may be ordered at the same time with per-character costs scaled from 10c to 60c depending on body sizes. The customer receives the font quantity of each character ordered.

Sorts are available in all faces and sizes ATF makes regularly in 6 to 72 pt. bodies for font stock. The ATF sorts service plan does not supercede the sale of sorts cast to order in foundry lines, where the customer needs greater quantities than are put up in one font, or the face or size desired is not a standard font stock item. If more information is desired, please mention PEE No. 332 in your request.

Dri-Air Pump

THE Dexter-Conde Dri-Air Pump is designed for vacuum or air blast applications on machines in the Graphic Arts or packaging machinery fields. According to its sponsor, Dexter Folder Co., the pump requires no oil and has a balanced rotor which is suspended on two double-sealed grease packed ball bearings.

The vanes of the Dri-Air pump, which provide their own lubrication, are of a carbon-graphite alloy which is said to be hard, light, non-sticking, non-warping and chemically inert. Cylinder walls and side plates of the unit are precision ground. It is further claimed by the company that the pump runs cool.

The Dexter-Conde pump is available in three sizes. Specifications are as follows: max. free air capacity—Model 2, 6.2 c.f.m., Model 3, 17.0 c.f.m., and Model 6, 35.0 c.f.m.; max. recommended pressure—Model 2, 7 p.s.i., Model 3, 10 p.s.i., and Model 6, 12 p.s.i.; and max. recommended vacuum for all three models, intermittent, 20 in., steady, 15 in.

Additional information is available by addressing your request to *Printing Equipment Engineer* and mentioning PEE No. 328.

Preventive Maintenance Booklet

WESTINGHOUSE Electric Corp. has made available a 28 page booklet on an industrial preventive maintenance program. General preventive maintenance programs which are designed to reduce shut-down time on production lines are discussed in the booklet. A suggested schedule of work and cleaning on power equipment is presented in chart form. The reader is referred from the chart to the general body of the booklet for more specific information. Preventive maintenance information is included for motors, controls, generators, switchcards, turbines and other types of electrical apparatus. The frequency of inspection and care of these pieces of equipment are listed along with any additional precautions that may have to be taken for specific parts. A copy of the booklet is available by mentioning PEE No. 322 in your request.

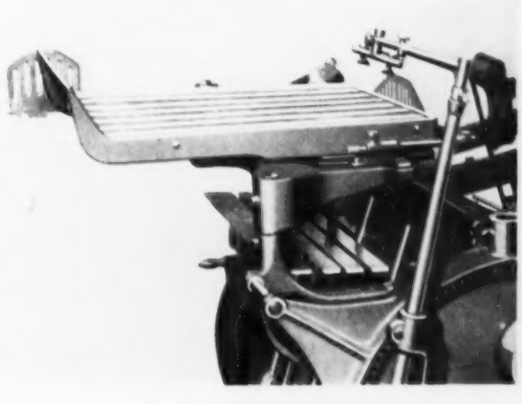
Multi-purpose Magnetic Probe—The G-S Magnetic Probe is used for removing steel or iron particles from areas where such foreign matter is harmful, such as the operating area of electrical instruments or delicate mechanisms. It can also be used for removing sharp particles of steel, iron or nickel from storage bins and retrieve magnetic particles from holes and similar hard-to-reach places. According to its sponsor, General Scientific Equipment Co., the Probe will remove steel splinters from the eye or skin. Made of super-magnetic alloy, the G-S Probe is approx. the size of a fountain pen. The point of magnet is extended or retracted from a case by turning end-knob. Strength of magnet can be controlled by amount of extension. Please mention PEE No. 331 when writing for more details.

Continuous Delivery Table

THE Chandler & Price Craftsman Automatic Platen Printing Press in the 10 in. by 15 in. and the 12 in. by 18 in. sizes, may be equipped with a Continuous Delivery Table. This table is designed for handling made-up envelopes in large quantities, as well as thick folders or heavy boards which tend to fill up the regular delivery table quickly. The table, in connection with the regular delivery suckers, will handle odd-shaped pieces individually and permits depositing them in overlapped position the length of the table, from which they can be removed readily. To illustrate, the press fitted with the continuous feed table will handle 0.004 in. thick strips, $3\frac{1}{4}$ in. by $5\frac{1}{2}$ in. at regular press speeds.

The Continuous Delivery Table is mounted on top of the regular delivery table. By means of endless tapes, it moves the printed pieces toward the table front at a speed of approx. $\frac{1}{2}$ in. to each printing cycle of the press.

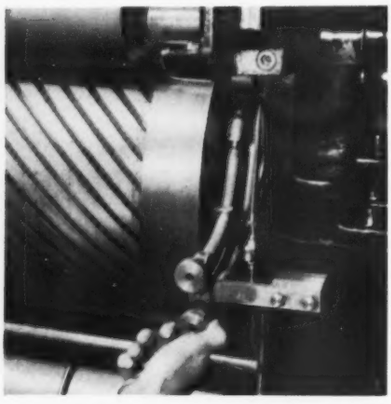
The table mechanism is fastened to the side jogger bars and is operated by ratchet and pawl with power supplied by the moving jogger operating shaft. Complete information may be obtained by mentioning PEE No. 325 in your request.



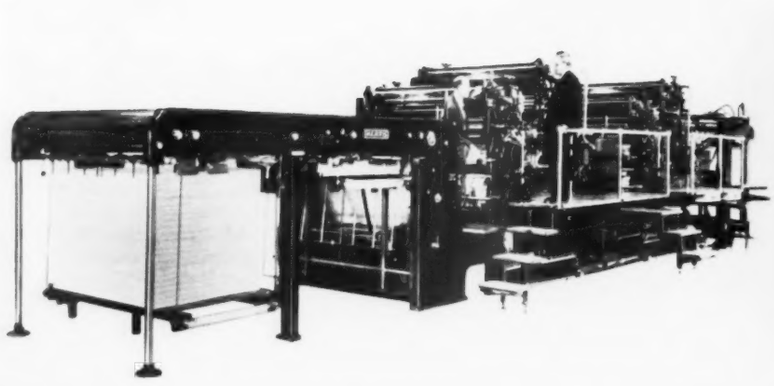
View of Continuous Delivery Table for attachment to either 10 in. by 15 in. or 12 in. by 18 in. Chandler & Price Automatic Platen Presses. Unit will handle made-up envelopes in large quantities, thick folders or heavy boards, and odd-shaped pieces at regular press speeds.

Four-Color Letterpress

COMPLETION of the first Harris four-color rotary letterpress was announced recently by Ren R. Perry, General Sales Mgr. for Harris-Seybold Co. The 45 in. by 65 in. press is primarily a tandem arrangement of the printing units from two Harris two-color letterpress machines. According to the company, the coupling affords maximum accessibility to tympan and plate cylinders.



Adjustment of form rollers to the plate are made possible by these external adjusting knobs installed on the Harris T465 four-color rotary letterpress.



View of the Harris four-color rotary letterpress equipped with a double delivery system. The press is shown with its chief designers, Harris letterpress engineers Robert K. Norton (left) and Irving F. Niles.

Known as the T465, the press was designed for printing on cardboard stock by the folding carton industry. With a few changes, states the sponsor, the T465 can also be used for multi-color printing of magazines, catalogs and other long-run letterpress material.

Harris-Seybold claims several features of the press aid in reducing downtime for loading and unloading board stock. The T465 will accommodate enough 20 pt. board to last about 35 min. when the press is running at approx. 5000 sheets per hr. A cardboard loading device enables the operator to change loads in approx. 2 min. The press is also equipped with a double delivery system with which the operator can deliver sheets to either of two piles, or alternately to both, by moving a lever.

Externally located self-locking adjusting knobs provide means of adjusting form rollers to the plate even while press is running. Specifications of the T465 are as follows: min. sheet size, 25 in. by 38 in.; max. sheet size, 45 in. by 65 in.; max. speed, under proper operating conditions, up to 6000 sheets per hr.

More details are available by addressing your request to *Printing Equipment Engineer* and mentioning PEE No. 327.

Opaquing Compound

IT IS claimed that Miracle Opaque, developed by General Plate Makers Supply Co., will cover the desired area on a negative with one stroke of brush or pen. For use by photoengraving, offset and rotogravure platemakers and photo retouchers, the opaquing compound is said to be smooth-flowing, and dries rapidly to form a thin, tough, opaque film. It is also reported that it will not peel, crack or check even though exposed to heat. Because it is soluble in water, states sponsor, the opaque can be cleaned off without leaving a stain. The concentrated solution can be diluted with water to the thickness required. Miracle Opaque is available in both red and black, and in 2 oz., 4 oz. and 8 oz. sizes. Please mention PEE No. 329 when requesting further details.

Improved Floor Machines

HILD Floor Scrubbing and Polishing Machines are now equipped with adjustable handles, it has been announced by Hild Floor Machine Co. The improvement enables the handle to be raised or lowered to the operating position most comfortable for tall or short operators. The floor machines are designed to scrub, wax, polish, buff, sand, grind or steel wool floors of all kinds. Six models of Hild machines are available with brush spreads from 11 in. to 19 in. The adjustable handle is standard equipment on all but the two smallest models. More information is available by mentioning PEE No. 323, when writing *Printing Equipment Engineer*.

Offset Blanket and Roller Wash

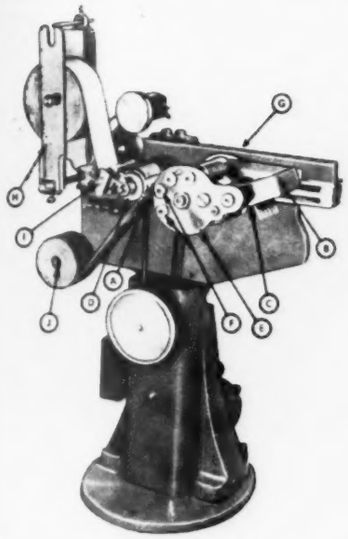
ANCHOR Chemical Corp. has announced an offset blanket and roller wash that is claimed to be non-toxic, non-explosive and quick-drying. The company states the solvent, known as Ronolene, was developed for printers to replace the poisonous and toxic effects of gasoline, benzene, carbon tetrachloride, perchlorethylene and other chlorinated solvents. Some of these solvents are also highly inflammable and explosive. Ronolene is claimed to be non-toxic and harmless since it contains no carbon tetrachloride or coal tar solvents. It is reported to have a flash point of over 100 deg. F. For more details, please mention PEE No. 317 in your request.

Truck Catalog

LEWIS-SHEPARD Electric Fork Trucks are the subject of a 20 page catalog available from Lewis-Shepard Products, Inc. Printed in three colors, the catalog contains descriptions and illustrations of seven of the company's SpaceMaster models. Information includes operating characteristics, engineering improvements, maintenance features, and accessories and attachments. The catalog has been designed with a file-away tab on its cover for future reference needs. A copy is available by mentioning PEE No. 324 in your request.

Industrial Luminaire

A NEWLY designed industrial luminaire developed by Westinghouse Electric Corp. is suitable for the operation of two T-17 mogul fluorescent lamps rated at 85, 90 or 100 w. Known as the Model 2FPR-90, the luminaire is equipped with a lampholder support, a gusseted section which covers more than half of the socket and assures correct lampholder spacing. A snap-in chain mounting bracket permits suspension from either one or two points. The bracket is inserted in knockout slots in the top of the fixture by pressing it through from the inside. The luminaire is also equipped with indexed starters. Standard equipment includes a lamplock for holding lamps with secureness in high vibration areas. Please refer to PEE No. 309 when requesting more information from *Printing Equipment Engineer*.



View of Ever Ready Label Corp.'s Rotary-X Tape Printing Press which will print from rubber plates with either oil or aniline ink on various kinds of materials. Approx. printing speed is 600 ft. per min. In this illustration the various parts have been indexed as follows: A is the plate cylinder; B is the ink fountain, C is the ink doctor blade, impression cylinder is indicated at D, at E is the ink distributor head, ink form rollers are shown at F, at G are the locking nuts, outer roll supports are shown at H, at I is the feed roller and J is the rewind fork. Floor space required, 18 in. by 30 in.

Rotary-X Tape Printing Press

THE Rotary-X Tape Printing Press will print in one, two or three colors on kraft and other paper stocks, both gummed and ungummed, foil, transparent film, cloth selvage and many other narrow gauge materials, including pressure sensitive tapes, up to 6 in. wide, at speeds of approx. 600 ft. per min. The press prints from rubber plates which are affixed to the plate cylinder with sticky-back. The stock to be printed is mounted in roll form and is rewound as printed.

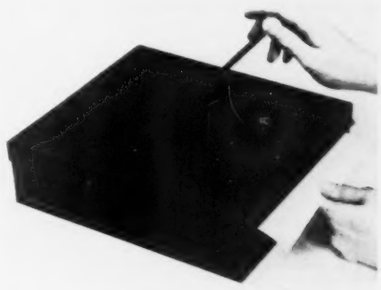
Presses may be obtained with single or two color printing heads, in six standard models, ranging in capacity from 3 in. to 6 in. widths, all suitable for either oil or aniline printing at will.

Four different printing cylinders are furnished as standard equipment. The circumferences determine the length of impression on the tape, as follows: No. 1, 6.28 in. circumf.; No. 2, 7.85 in. circumf.; No. 3, 9.42 in. circumf., and No. 4, 12.56 in. circumf.

Interchangeable ink fountains permit changeover from regular printing ink to aniline. A slitting attachment cuts the web down to narrower widths. An illustrated folder is available for the asking. Please mention PEE No. 326 in your request.

MMM Annual Report

Sales of Minnesota Mining and Mfg. Co. for 1951 reached an all-time peak of $170,067,527, according to the recently issued annual report of the company. The new sales record was 11 per cent over the previous record set in 1950. The 24 page and cover report, printed in four colors and black, includes a review of the year's operations and the product developments of the firm during the last 50 years of operation. The company, founded in 1902, is celebrating its 50th year.



Sensitized Paper Dispenser—A dispenser designed for delivering a single sheet of Portagraph sensitized paper in photocopying operations everytime the handle is flicked, has been announced by Remington Rand Inc. Claimed to be light-tight with a cloth-protected ejection slot, the dispenser is equipped with a spring controlled ejection bar for delivering the single sheets. The device is available in two sizes. The G23 is for $8\frac{1}{2}$ in. by 11 in. sensitized paper. The G24 will accommodate $8\frac{1}{2}$ in. by 14 in. paper. The dispensers weigh $4\frac{5}{8}$ lbs. and $5\frac{1}{4}$ lbs. respectively. More information is available by mentioning PEE No. 321 in your request.

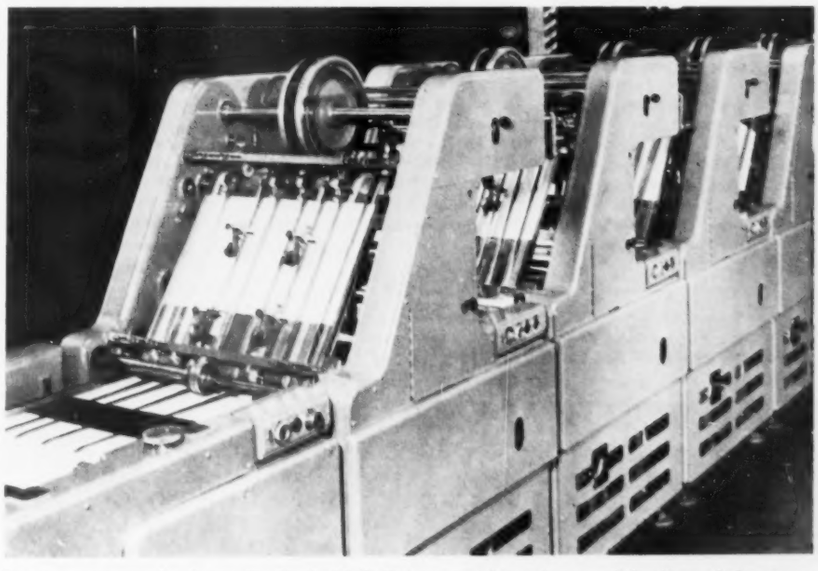
17 x 22 Seybold Collator

THE Seybold Collator, designed to handle sheets up to 17 in. by 22 in., will be demonstrated by Harris-Seybold Co. in its Chicago offices during the week of May 12 and its New York offices the week of May 26. The collator, which is intended for large gathering operations, is of unit construction, allowing multiple feeding stations to be connected in line. Pick-up and feeding of sheets at each station is accomplished by rotary vacuum wheels. Sponsor claims the machine will gather at speeds up to 6000 complete sets per hr.

Attachments are available for the collator to strip-paste in the direction of travel or spot-glue across the sheet. It will handle stock ranging from 8 lb. manifold to light boards and bristols, including selected grades of carbon paper, both singly and attached to printed work.

The delivery will collect a pre-selected number of sets and move them forward to the operator for take-off, while another group of sets is being collected. Sets can be gathered in groups of 10, 25 or 50. A sequence-starting arrangement provides for full sets to be delivered automatically when the machine begins operation.

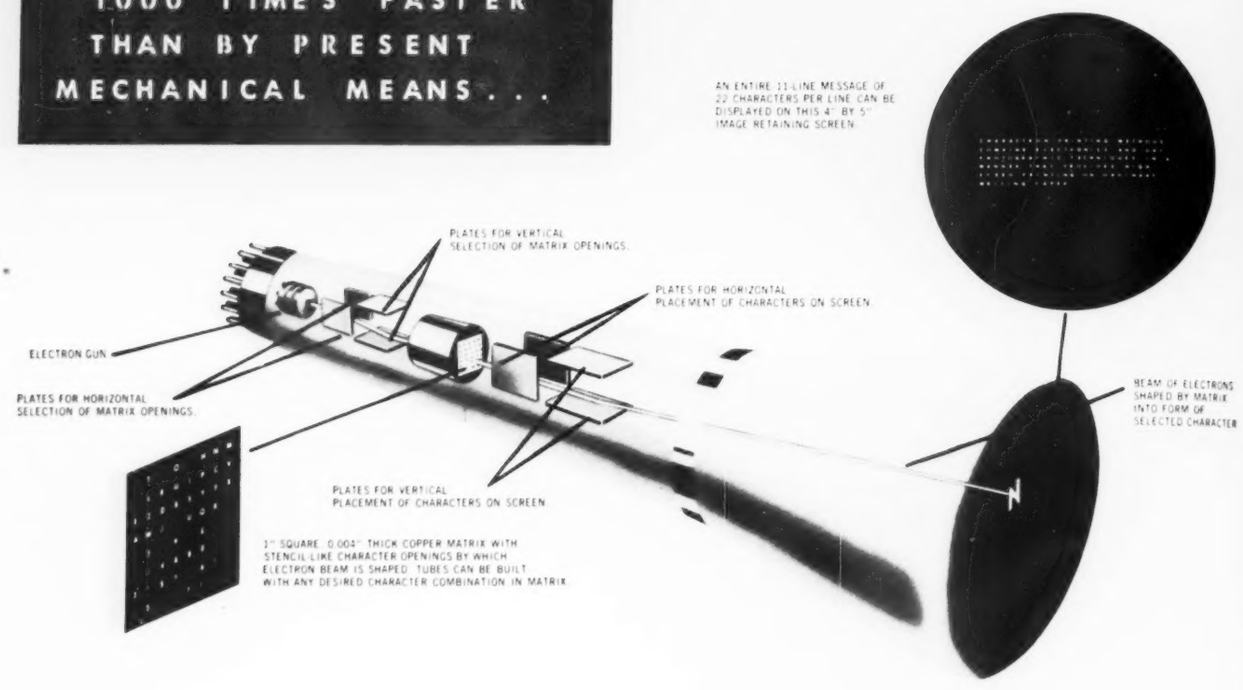
In the event the rotary vacuum wheels fail to pick up a sheet or pick up two sheets at each station, a detection device (similar to those on press feeders) stops the collator. This causes a light to go on at the station where the mis-feed occurred. If more information is desired, please mention PEE No. 330 in your request.



Rotary vacuum wheels on the Seybold Collator provide pick-up and feeding of sheets up to 17 in. by 22 in. and at speeds up to 6000 sets per hr. Sheets are fed from each unit to convey below.

A REVOLUTIONARY NEW METHOD OF DISPLAYING COMMUNICATIONS OR COMPUTER OUTPUT DATA 1000 TIMES FASTER THAN BY PRESENT MECHANICAL MEANS . . .

This is a halftone reproduction of the size of letters which currently can be transferred from the Charactron cathode-ray tube to paper on the "press" shown in the diagram on opposite page.


AN ENTIRE 11-LINE MESSAGE OF 22 CHARACTERS PER LINE CAN BE DISPLAYED ON THIS 4" BY 5" IMAGE RETAINING SCREEN.
PLATES FOR VERTICAL SELECTION OF MATRIX OPENINGS.
PLATES FOR HORIZONTAL PLACEMENT OF CHARACTERS ON SCREEN.
ELECTRON GUN
PLATES FOR HORIZONTAL SELECTION OF MATRIX OPENINGS.
BEAM OF ELECTRONS SHAPED BY MATRIX INTO FORM OF SELECTED CHARACTER
PLATES FOR VERTICAL PLACEMENT OF CHARACTERS ON SCREEN
1" SQUARE, 0.004" THICK COPPER MATRIX WITH STENCIL-LIKE CHARACTER OPENINGS BY WHICH ELECTRON BEAM IS SHAPED. TUBES CAN BE BUILT WITH ANY DESIRED CHARACTER COMBINATION IN MATRIX.

Charactron Cathode-Ray Tube.—A recent development of interest to certain segments of the Graphic Arts Industry is the Charactron cathode-ray tube illustrated here. It was developed under license from patents of Joseph T. McNaney by Convair (Consolidated Vultee Aircraft Corp., San Diego, Calif.) Its purpose is to rapidly display messages transmitted by high-speed communications system, or to record the output of high-speed analog or digital computers. Its interest to the Graphic Arts industry, however, is the proposed linkage with a Xerographic "printing" press. (See opposite page.)

Incorporated in the Charactron cathode-ray tube is a beam-forming matrix located between the electron gun and the fluorescent screen. The matrix contains letter and numeral openings through which a pencil-lead size electron beam is passed. This shaped beam is then deflected to a desired point on the tube screen where it can be read or photographed.

Electrostatic deflection is utilized in the Charactron for both character selection in the matrix and the final location of character presentation on the face of the tube. Thus, the proper sequence of applied deflection voltages selects the matrix characters and orients them on the screen so that the imput signals are translated into visible intelligence.

In speaking before the Institute of Radio Engineers in New York in March, Mr. McNaney said: "We believe that the Xerography process, developed by the Haloid Company, Rochester, N. Y., will be ideally suited for use in connection with the Charactron tube as a means of recording the output. Convair has had discussions with the Haloid Company with a view to a cooperative development of this equipment . . . An electro-static deflection system is utilized for the character selection of the matrix, and either electro-static or electro-magnetic deflection—similar to that used with television tubes—is used for placing the character image on the viewing screen."

Mr. McNaney also discussed the projected dry printing method. Among other statements with respect to the projected "press" was the following which Graphic Arts executives will be glad to know about: "Cylinder rotations and paper movements are synchronized with the reception rate of the message codes by means of an extremely sensitive and stable servo loop. The characters are transferred to the constantly revolving cylinder in a series of straight lines. A twisting or spiraling of the lines as they are exposed to the surface of the cylinder is prevented by a vertical movement of the beam as it is swept horizontally across the screen of the Charactron."

pH Meter Electrode Cleaning Speeded

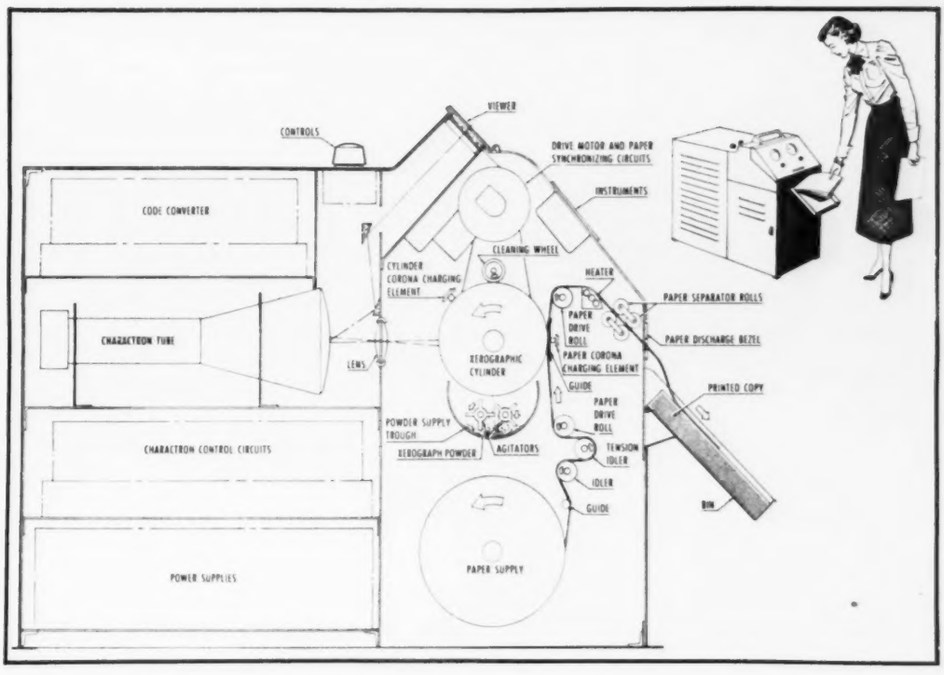
RECENTLY, the Lithographic Technical Foundation, emphasized the need for clean glass electrodes when making pH measurements with an electric meter. At that time, LTF suggested repeated rinsing of the electrodes with distilled water to clean them. You'd keep on rinsing until you get constant pH reading of about 5 from different samples of distilled water.

Since then, LTF ran across a new silicone material that saves a lot of rinsing. This material is called Desicote. It was developed by Beckman Instruments, Inc., and is available from almost any well-stocked chemical supply house.

Anyone who has used a pH meter knows what a job it is to clean electrodes especially after they have been in sticky, viscous solutions like gums and etches. But, if you apply a thin film of Desicote to the glass electrodes of your pH meter the problem is solved.

This material makes glass repel water and also many solutions of materials dissolved in water. When the glass electrodes do this, it's a very easy job to clean them. In fact, LTF has found that a single rinsing with distilled water usually will do a thorough cleaning job no matter in what solution the electrodes have been immersed.

Complete and detailed instructions come with each bottle of the material.



Proposed High Speed Printer.—In this diagram is illustrated a plan to combine compactly the Convair-developed Charactron tube and its circuitry with the components of Xerographic printing equipment to provide a small "printing press" unit which is said to be capable of reproducing electronic pulses into readable information on newsprint or other paper at speeds of approx. 20 in. of paper per sec. without film or conventional liquid chemical photographic processes. (The Xerographic process was developed at Battelle Institute, Columbus, O., for Haloid Company, Rochester, N. Y., with collaboration of Inventor C. F. Carlson, a New York patent attorney.)

Readers of *Printing Equipment Engineer* will remember the detailed description of the Xerographic process which appeared in the Nov. 1948 issue together with discussion of a small model of Xeroprinter. In the proposed model illustrated here, the readable image is fused to the paper by a heater arrangement before the sheeted stock is sent to the delivery mechanism to prevent the reading matter from rubbing or smudging.

The reading characters produced on the tube's viewing screen are projected through the lens to the electron-sensitive Xerographic cylinder and are transferred to the rapidly moving paper web by means of Xerographic powder.

The printed paper may be taken off the "press" in roll form, or as shown, in sheets of desired size by perforating and the use of separator rolls. Present tube is 20 in. long. See opposite page.

BOOKS

The Art of Photoengraving

THE American Photoengravers Assoc. has prepared a 64 page booklet entitled *The Art of Photoengraving*, of which 100 thousand copies are to be distributed by members of the photoengraving industry. The booklet is intended to aid advertisers, printers, publishers, and others who buy and use photoengravings in obtaining satisfactory results in their printing by planning with understanding of the progressive steps from the inception of the idea to the finished product.

The various photoengraving processes and their application in all forms of letterpress printing are explained in the booklet. It contains detailed descriptions of the operations involved in the production of photoengravings, from the simple line etching and halftone to the most complicated color process plates.

Seventy-four illustrations, 12 printed in color, serve to clarify the text. The subjects treated include a non-technical description of the various processes, preparation of copy for reproduction, treatment of copy, choice of halftone screens and the papers to which they are suited, and the use of shading mediums. Trade customs and a glossary containing 900 trade terms and their definitions complete the booklet.

The Art of Photoengraving measures 7 in. by 10 in. and is printed on enamel paper. A modernistic cover design is printed in four colors on heavy enamel cover stock. Copies can be obtained without charge from any photoengraving concern.

Maintenance Check List for Linecasting Machines

ACCORDING to Thomas H. Bell, author of *Maintenance Check List for Linecasting Machines*, the first edition of this manual has been compiled to provide a reference of common ills and cures of line-casting machinery. It also includes care and adjustments of Linotypes as recommended by the Mergenthaler Linotype Co.

Divided into 21 parts, the 96 page book offers solutions to transposition, doublet, assembler slide, line delivery, ejection, distribution, transfer and driving clutch troubles. When matrices will not fall, matrices pied by the line delivery, faulty spaceband box action and mold disk lockup are among the other problems dealt with by the author.

An analytical approach is used by Author Bell in arriving at the solution of linecasting machine troubles. Corrective measures are expressed in understandable language to enable the machine operator to solve his own problems. Each part of the book is comprised of several sections with a list of commonly found troubles and their solutions presented in each section.

Thomas H. Bell is associated with the Linotype School of the School of Journalism, University of Missouri, Columbia, Mo.

Craftsmen Convention Program

AT THE mid-winter Board Meeting of the Intl. Assoc. of Printing House Craftsmen, approval was given for the program submitted by Stuart Braznell, General Chairman of the Convention Committees for the 33rd Annual Convention to be held in St. Louis, August 10-13, 1952.

The program, while generally following the successful patterns established by experience, will contain many new features among which will be a Question and Answer Clinic of 26 experts who are outstanding in the Graphic Arts industries. This panel of talent will have as its moderator, President Homer Winkler and promises to be one of the highlights of the convention.

Several speakers of national prominence have already indicated that they will participate in the educational program. As soon as they have definitely settled on the subjects of their respective talks, further announcement will be made.

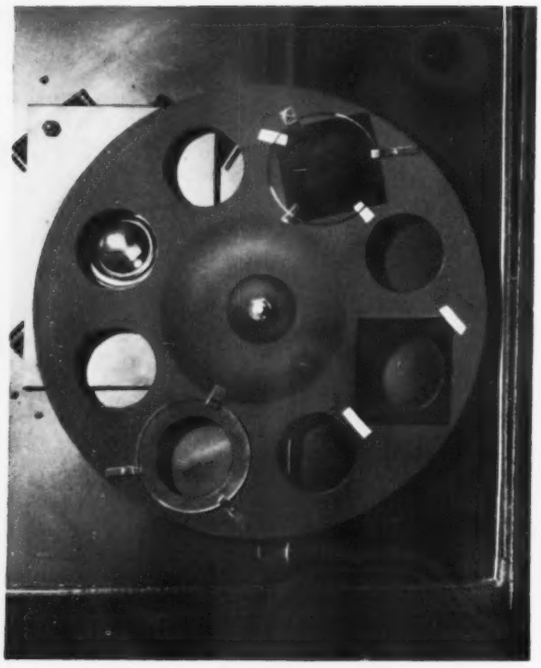


Fig. 1.

Camera Filter Magazine

MANY kinds of printing equipment are supplied with accessories to broaden the range of work which may be done on them. In some cases also, a new method or process may be adopted for an existing piece of equipment in which the use of independent accessories is necessary.

This happened in the photoengraving department of the Columbus (O.) *Dispatch* when the Kromolite halftone drop-out process was installed. The filters used

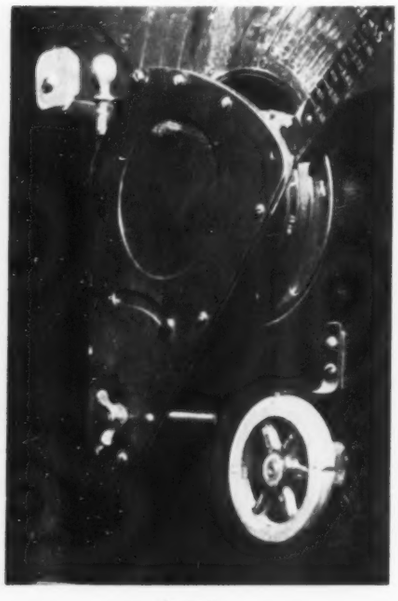


Fig. 2.

to obtain the highlighted effect in halftones were of the ordinary type which are capped over the lens barrel while in use. In the usual photoengraving plant where color work isn't done continuously there is liability of misplacement of, or damage to, the filters when not in use. In the latter case, replacement of the filter is necessary.

To overcome this hazard, I. T. McQueeney, Mechanical Supt. (and at that time Photoengraving Supt.) designed what might be called a filter magazine which is mounted in a fixed and rotatable position immediately behind the lens inside the lens board of the strip film camera. (See Fig. 1.) Since the filters are mounted in a sheltered position, there is no manual handling involved. In addition, much of the photographer's time is saved.

The filter magazine plate mounted back of the lens board inside the camera was cut from a sheet of 16 ga. photo-engraver's zinc (approx. 0.065 in. thick) to 14 in. diam. Disposed radially with respect to the axis are eight holes, spaced equi-distant around the edge of the disk, each 2½ in. diam. The filtering medium can be mounted over the hole with adhesive tape if the filter is of the film type, and by means of spring clamps if of glass as in the case of the compensator used for line work like that shown in Fig. 1. In some cases it might be necessary to hold the filter film both with adhesive tape and clear glass disk.

At the *Dispatch* photoengraving department, only the filters necessary for the dropout are used. The eight holes, however, are sufficient in number to permit mounting filters for red, blue and yellow separations if desired.

The filter magazine disk is mounted on a shaft which extends through the front of the lens board. On the projecting end of the shaft is a wheel about 4 in. diam. (picked up from odd parts such as are usually to be found in the plant). The edge of the wheel is notched to position each filter properly before the lens when the spring detent rests in the corresponding notch in the rim of the turning wheel.

This simple device enables the camera operator to position the proper filter in a virtually automatic manner and eliminates much lost motion as well as possible damage to filters when handling them as separable pieces.

Fiftieth Anniversary

Observance of its 50th anniversary is being made this year by Tingue, Brown & Co. In an announcement being sent to its customers and friends, the company calls attention to the 50 years of operation and quotes from a message directed to a group of Tingue, Brown employees by the late William J. Tingue, founder of the firm, in 1940. Mr. Tingue pointed out then how, "hard work, integrity and self sacrifice" had figured in establishing the reputation of the Tingue, Brown organization.

Distributor Reel Light—A number of line-composing machine distributor trouble lamps have been devised by composing room machinists. Whatever type of trouble lamp is installed it should permit quick illumination and should also be constructed so the cord will not become entangled with the machine mechanism in any way.

At the Columbus (O.) *Dispatch*, Chief Composing Room Machinist Harold C. Johnson employs an Appleton Reelite on all distributors. The Reelite is mounted as in the accompanying illustration in which Mr. Johnson is manipulating the device.

In making the application, it will be necessary to change the stopping piece on the reel because the reel itself is designed to hang from the ceiling.

Catalog No. of the Reelite is RE-1532. Its diameter is 5½ in. The wood handle with socket, cage, switch and half reflector is obtainable from maker of the reel.

Care should be taken at all times to rewind the cord completely within the housing after use. This applies particularly to power-driven gate opening machines.

Original length of cord is 12 ft., although it can be cut to a length of 9 ft., which is sufficient to reach anywhere about the machine.

Problems of Chief Sanitary Engineer

By William Feather, Jr.

(Printed by permission of *The William Feather Magazine*. Published by The William Feather Co., Cleveland commercial printers.)

WE are great believers in orderliness and free working space. If a shop is clean, well lighted and tidy, with everything in its place, these conditions are reflected in the product.

In view of my own strong thoughts on this subject, I was elected Chief Sanitary Engineer by acclaim on my return to the company in 1946. Luckily, Ralph Niederst came along shortly afterward and I appointed him my assistant. Now he does all the work and I accept all the credit.

But a Chief Sanitary Engineer has to do a lot of nagging. I nag Niederst at least twice a day about something. Then, occasionally, I go in the plant and nag the foremen.

We have licked the problems of keeping the lights clean, and keeping the floors scrubbed and swept. Our main and continuing problem is finding places to park stuff. Every time we open up one more square foot of space someone puts something in it. Then we have to get tough with the guilty party and tell him he can't put it there, that space must be kept clear.

The foremen have been nagged so much they are now quite snappy when anyone parks something in their free space.

Our night porter tried for three weeks to find a place to store his mopping tank. In turn he was kicked out of the composing, press, bindery, and shipping departments. Finally he gave up in disgust and parked it in the center of the plant. We swooped down on him, but he was ready for us. He said he loved mopping for us but he would have to quit if we didn't find a place for his tank. He said he was tired of having his tank kicked around.

The press foreman was sorry for him, and so was the bindery foreman. A compromise was made. The tank now rests against a wall, half in the bindery and half in the press room.

All this has proved profitable in every way. It can be hard on the nerves but it keeps up production and morale.

Color Printing Techniques Discussed By Newspaper Production Manager

By HARRY EYBERS*

*Production Mgr., Washington (D.C.) Post. *Abstract of address delivered before Mid-Atlantic Mechanical Conference, Philadelphia, March 1952.*

I DO NOT believe the time is too far off when morning papers will produce full color shots taken the afternoon before. The nearest we have come to this at the Washington (D.C.) *Post*, occurred a few weeks ago. When Queen Elizabeth was planning to visit this country we made a set of color plates using only yellow, red and blue from a transparency sent us. We were not too happy with the transparency to start with but took a chance anyhow. The final results were not all we wanted them to be so we held up the job. The evening prior to Queen Elizabeth taking over the throne, our Editorial and Circulation Department decided at the last minute that we should have color on page 1. There was no color scheduled for our paper the next morning and at 9:10 p.m. we decided to run this previously rejected set of color plates of the royal family. The job went to the direct pressure press at 9:10 and we made an 11:15 p.m. start for our State edition. We were not able to do any highlighting nor did we nickel the plates. We were not very proud of the results. But it was proved to us that highlighting and nickeling was a must because the highlight areas filled in before the run was very far along.

Unfortunately, we ran into one of those nights in the pressroom when it was just about impossible to keep a web in the press and it was also our first attempt at running full color on a three-section balloon run. However, we did prove it could be done in a hurry and sold a lot of extra papers because this color appeared on the front page of our paper.

My only reason for telling you of my experience is to convince you of the importance of an organizational job in your own plant. You will get some helpful hints during color discussions at these mechanical conferences. Also a lot of knowledge can be gained by visiting plants already reproducing full color, but you will find the job will still have to be done in your plant by your own people and with the equipment you have on hand.

Mechanical Executives' Part

You will probably wonder what part we can play in this picture. First of all, we should do all we can to encourage management to equip for color, even if it is only one color to start with. I have heard of cases where management asked its mechanical executives how they felt about color and what would have to be done to make it available, and it was purposely discouraged because of the added production headaches. The estimates of the costs of converting or adding color equipment was purposely put at a high figure to discourage the move. There are many headaches connected with running r.o.p. color, especially in the large metropolitan newspapers, where now it already is a problem to produce a paper in straight black. Yet, there are large metropolitan papers who had this same problem and have taken on the added headaches of color and are doing an excellent job.

Work With What You Have

The ideal situation, if you are going to run full color, is to have available all the eequipment on the market to do the job. But it still is possible to do this job without all this super equipment. The Milwaukee (Wis.) *Journal*, which is leading the country in color linage, does not even have color cylinders on its presses. The *Journal's* lineage has been built up to a point where it is profitable to run most of its r.o.p. full color as advance sections and insert these sections into the daily paper. This is the ideal way to run color —no pressure, with time available to clean up, move a plate, or to make any other necessary changes to improve the reproduction qualities—but it means early deadlines.

Keep Production Costs Low

We in Washington, and I am sure there are many like us, are attempting to run color the way all papers will eventually have to run it. The only way we can encourage color and make it profitable is to keep production costs as low as possible. This can't be done if elaborate color departments are set up in stereotype rooms and advance registering crews are set up in pressrooms. Some large metropolitan dailies might be forced to this type of setup, but most papers cannot afford to do this and we have not found it necessary.

We do not have separate color departments in our plant. We work color in with the regular daily paper in our stereotype department and hire extra help only when the load requires it. We bring press crews in one-half hour earlier when we have color to register. This is doing it the hard way because the plates have to be right. We will not have time for any makeovers. We do not advance our edition times, regardless of how many color jobs we carry. We start on time with

what we have. This compels us to do the job right the first time.

Cold-Mold One Color and Black

We cold-mold all of our one-color-and black jobs, in spite of operating with a 1⅛-in. shrinkage mat. We use direct pressure hot molding on all full-color work and nickel all full-color plates. On full-color work we do a tremendous highlighting job on the back of the mat. We use 0.003 in. manila to hold back all the highlight areas in the red and blue plates and nearly always hold back the entire black plate. We seldom touch the yellow plate. Our experience has been that in holding back these highlight areas the pressmen can carry enough color to get brilliance and still keep the highlight areas clean. We do this on all jobs, regardless of whether they are made in our plant or sent to us. The only exception is mats sent to us by the Lake Shore Electrotype Co., whose Bista pre-makeready process I consider a great advance for better reproduction of full color work in newspapers.

Watch Production Costs

There are many other ways through which the cost of producing full color must be watched. If we don't, our advertising people will be forced to increase rates to a point where the cost will be prohibitive. I am sure that if they have examined all their costs very few newspapers can claim they are making a profit on color work. Ink is an important item. We and many other newspapers have found that the lower priced comic page colors are not strong enough to give the brilliance on four-color process that is demanded by the advertiser or editor. This means that to use these stronger colors a much higher color ink cost must be paid. This condition prevails even more when special color inks are used. The ink companies can do a great deal to help get this color business and keep it in newspapers if they would all standardize on these new strong process colors and hold the price down. Any careless handling of these high-priced color inks in your plant can be very costly. Over-ordering ink on these special color jobs can also run into many dollars.

It happens that I am now in a plant where we have the finest color equipment that money can buy. During the last 10 months of 1951, we ran over a half-million lines of color advertising and a lot of editorial full color. In spite of this fine equipment, when we first started we were far from satisfied with the results. We are still a long way from the goal we hope to reach. We are improving considerably with every job and note as our teamwork improves between departments, our reproduction qualities improve.

Stereo Dept. Should Receive Credit

I feel the stereotype department should receive much of the credit for the improvement we are making in color work. The stereotype department is forced to get all it can out of the material furnished and has only one chance to do it. We feel that if you give the pressroom a good plate that will fall in register the pressmen ought to be able to print it. Their responsibility then lies in proper setting of color and keeping the job in register. The register problem is probably the toughest and most difficult to overcome. The pre-registering equipment now available by stereotype equipment manufacturers makes it possible to give the pressroom a plate that requires very little carding, if any. Of course, this only takes care of the side register. Unfortunately, papers do get out with color jobs out of register up and down until compensators are adusted.

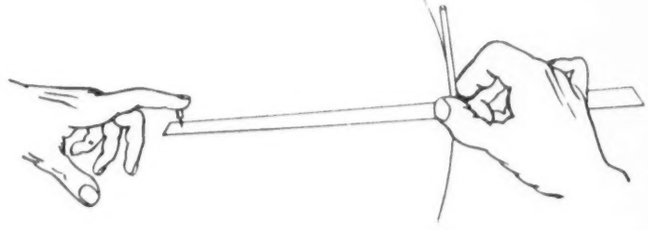
Those Few Out-of-Register Papers

In our case, it has happened mostly on the slow-down or during the paster cycle. Regardless of how perfect the reproduction qualities might be, all effect of color work is lost when the job is out of register. It is pretty hard to convince the advertiser or your own people that only a few papers got out which were off register. For instance, if you were to run 99,995 out of 100,000 copies in perfect register, and only five copies were out, how could you possibly prove there were only five papers out of register? I don't believe anyone has been able to solve this problem as yet. I understand the Electric Eye Equipment Co., of Danville, Ill., has equipment for newspaper presses whereby this register condition can be controlled. It will soon be installed on the presses of two of the leading papers now running full color. As this equipment is now successfully in use on rotogravure and magazine presses, there does not seem to be any reason why it would not work on newspaper presses. If successful, this would not only solve the register problem, but also reduce the printed waste caused by pulling out-of-register copies.

Does Not Use Premium Mat

I might also add that in our plant we do not use a premium mat for molding hot or cold color work. We use the same mat—the Burgess C mat the same as is used on black and white printing. I know many of you will feel "Sure, it's all right for him to talk when he has all that fine equipment". But we did not have all this equipment on the paper back West. (Editorial Note: The speaker referred to his color printing experiences at the Salt Lake City (Utah) *Tribune* commencing in 1944.) We were using a press over 20 years old and were forced to use auxiliary fountains when running full color. Our circulation was nearly 100,000 and our top printing about 32,000 an hour. Actually, I am looking forward to the time when we will be able to do as good a job in Washington with all our fine equipment. However, we are running our color in Washington at around 40,000 an hour.

There are a lot of "do's and don'ts" when ordering color equipment or setting up your operation to handle color, When ordering press equipment, make sure your business office, advertising and editorial departments understand thoroughly the positions in the paper in which color will be available. Some press manufacturer representatives have a tendency to oversell their equipment when it comes to available color positions. It is very easy for a press salesman to sit across the desk from a publisher and tell him color is available on every page in the paper. Often, this is nearly possible. But the same salesman does not have to be in the pressroom when leads run from hell to breakfast and you have to turn the sheet over a couple of times and still get



Cutting or Drawing Circles—A useful idea for cutting circles in silk screen stencils or for cutting or drawing circles for other purposes, appeared in the February 29 issue of *The British & Colonial Printer*. With long experience, it is stated in the article, the screen stencil cutter usually finds no difficulty in cutting a large circle freehand. However, it is much more reliable to use an instrument for this purpose. Beam compasses (trammels) are indicated. The stencil knife is fitted in place of the pen or pencil.

In the absence of a beam compass, the device illustrated here will be found most useful. It consists of a piece of celluloid or other transparent plastic long enough to sweep the radius required. At one end a small hole is made to take a glass-headed pin of the type used by photographers for pinning originals on the copyboard. The cutting film is then adhered in position, then the pin is inserted through the center hole in the drawing.

The tip of the stencil knife is pushed through the plastic at the point where the cut is required, just sufficient to cut through the top layer only of the cutting film. The cut is then made, taking care to keep the plastic flat on the surface of the original to insure accuracy of the sweep.

papers into the mailing room on time. I can't impress on you enough that this color position knowledge must be thoroughly understood because if you think you have ad position trouble, wait until you start running color.

Back Page Color

The back page of the paper on most presses in the easiest position on which to run color. This creates a serious difficulty in the pressroom on full page ads in keeping the job clean when the paper goes through the folder, especially in areas where all four colors run heavy and the papers are folded together with the ink still wet. My advice is to avoid this position, if possible, at least until the ink companies come up with a faster drying ink. If you don't, you either get a dirty job or a washed-out job if the pressroom cuts down on the ink to keep the job clean. This condition does not prevail when running color on the inside although there is some offset on the facing page. It is a case of trying to eat your cake and keep it too, but you will find the advertisers and editorial departments demand brilliance, even more than true reproduction.

Another important thing is to get the shortest leads possible. I have yet to see a press with leads short enough to suit me.

If your press manufacturer is not able to provide you with one-page color unit fountains, make sure that he can provide you with dividers. It is pretty expensive to fill a large fountain with a 70c or 80c special color ink when only printing a spot color.

Technical Details

When running editorial color, discourage any subject with fine details or small subjects. Avoid, if possible, any areas where all four colors run heavy. This, however, is pretty hard to do if the subject calls for it. Avoid reverse type in more than one color plate.

I feel that color in newspapers can be a life-saver for us if we let it. But it means more teamwork and closer coordination between all departments in your organization. It also means closer coordination between the equipment and supply manufacturers and the users in an attempt to get the best possible performance the simplest way and with the lowest cost.

My last statement may discourage you at first, but after consideration I believe you will agree with my conclusion. When first getting into color, there is a tendency to ask for long-time deadlines. This would be fine if we could keep it, but to make color eventually pay, this time must be just as close to publication time as possible, especially during these days when close merchandising is a must. If this is accomplished, we will be able to fill our color cylinders or units to full capacity and make color pay.

Many of our production executive readers will respond to your Position Wanted Ad in the Classified Section of *Printing Equipment Engineer*. Rates on p. 87.

Mechanical Thermostat Connection

By HAROLD C. JOHNSON*

**Chief Composing Room Machinist, Columbus (O.) Dispatch.*

TWENTY line-composing machines in the composing room of the Columbus (O.) *Dispatch* are supplied with mechanically-operated thermostats for the electric metal pots. In the illustration is shown one of the thermostats on an Intertype electric pot. To make removal or replacement of the thermostats a quick

operation we have connected the A-B-C thermostat terminals to a Hubbell Twist-Lock 3-pole Plug. This eliminates necessity for disconnecting the A-B-C wires separately. The thermostat can then be removed as soon as the four base fastening screws have been taken out.

We have two extra thermostats repaired at all times. As soon as a thermostat has cooled sufficiently, it is repaired so as to be ready for operation when needed.

In the case of a frozen metal pot, in some instances, the current can be made to remain "on" by working the thermostat operating lever to the "on" position. As soon as the metal has melted, the entire thermostat (base and all) can be lifted out after disconnecting.

In installing this system of thermostat wire connection, care must be taken to wire all plugs the same way. The lock prongs can only be inserted in the receptacle in one way due to the construction of the prongs in the male plug. Three short lengths of No. 14 slow burning flexible wire were braided for the wiring between the A-B-C terminals and the Hubbell Plug. If it can be obtained, a three wire asbestos cable would be preferable.

Above the Hubbell Twist-Lock receptacle shown in the illustration is a rectangular box with a 250 v. Neon bulb connected across the heater line. This lamp indicates when the power switch is "on" in the panel box.

Hazard Hunters

By LILLIAN STEMP

THE excitement that comes from planning a hunting trip, the anticipation of thrills from encounters with animals and snakes, the game, and the homecoming—these cannot be duplicated in a printing plant, but a reasonable facsimile occurs every time the safety inspection committee goes out to hunt hazards at the Crowell-Collier Publishing plant in Springfield, O.

Preparation

Only a party of four are selected to go on these hunts. The leader is a member of the Safety Advisory Board. The hunters are told their safari will last a year. During that time, they schedule at least one and sometimes two hunting trips each month, with at least one out of every six made at night.

The hazard hunters arm themselves with inspection badges, notebooks, pencils, and a rough sketch of the building layout for identification purposes. The remainder of their equipment is their own keen ears, alert eyes, and the ability to spot the unusual, see the obvious, and notice unfamiliar movements. They map their trips to cover two or three departments thoroughly each month, before moving on.

Stalking the Game

The hunters determine their own time, day, and area to be inspected. They let only the superintendent and departmental union representative know they are coming. Aware that like the animals themselves, hazards can often be found in hide-away places, the group pokes into odd corners and "places where nobody ever goes."

There is not as much game as there used to be at the Springfield plant. That is because the hazards are corrected as quickly and as is reasonably possible when they are reported. In fact, the success of the hazard hunts is due largely to the support of the plant's Vice President and Director of Manufacturing, Peter Dennerlein. When questioned as to whether or not he was back of the safety program, he replied by sending an on-the-line letter to all employees. And this is what he said, in part:

"Is management backing the safety program? It certainly is—to the limit. As long as accidents occur there is no ceiling to the effort we are ready to make to get rid of them. . . . If the elimination of a safety hazard requires the purchase of material or machinery, the purchase

requisition, of course, should come from the department head to me for approval if he concurs with the recommendation of the safety committee. If he does not, I would like to be so advised for the purpose of clearing the docket of any misunderstandings or delinquency on the part of management."

With such support, it is no wonder that five years ago most of the inspection reports carried about 20 items. Several years later the hazards numbered about three. Now only one or two items appear.

Homecoming

Hazards as noted are written up in narrative style and signed by the hazard hunters. A copy is sent to the head of the particular department involved, as well as the heads of the various maintenance departments. Periodically, the Safety Advisory Board meets to review the reports and to determine what disposition has been made of the various items. The hunters return exhilarated by the fact that through their hunting hazards are brought out into the open for elimination. For each such hazard they might well cut a mental notch on their pencils.

Hunting hazards by the hunters are supplemented by daily efforts of departmental workers and supervisors, who try to beat the inspection committees to the draw by reporting unsafe conditions and practices as they notice them. To encourage this type of safety activity, the company has supplied the men with Emergency Safety Report forms. These are used in reporting safety suggestions, hazards, problems or violations. The feeling of confidence and co-operation in eliminating hazards has grown to enviable proportions and has done much towards keeping accident hazards to a minimum at the Crowell-Collier plant.

Newspaper Ready for 62 in. Rolls

CHANGING from a 64 in. to a 62 in. paper web presents the major problem of fitting national advertising plates into 11.8 columns said John J. Oliver, Mechanical Supt., Afro-American Newspapers, Baltimore, Md. Executives of his paper are considering going to narrower width roll. According to Mr. Oliver, who addressed the Pressroom and Stereotype Session of the March Mid-Atlantic Newspaper Mechanical Conference in Philadelphia, half of these plates are 12 picas wide and cannot be cut to reduce their width in the form.

Oliver observed that shrinking the plates by making shell casts means loss of detail, filling-in, etc. He said, "Re-engraving is the only other adequate solution in our plant. This will be expensive but since we are not sufficiently large to have agencies make our plates a special width, and since we must do passable printing, we have no alternative."

The speaker added, "We hope that in the near future, the agencies and advertisers will agree that having a plate made 11.6 is far more to their advantage than having it cut down, shrunk or re-engraved."

In relating the techniques involved in changing to a 62 in. wide newspaper roll, Oliver first reviewed what had taken place in 1947, when, he said, it was necessary to reduce the roll size from 66 in. to 64 in. This, he said, was accomplished by reducing column rules and shrinking each page 1⅛ in. down to 15⅛ in.

"We seemed fairly set in our operations," he continued, "But in May 1951 an increase in the price of paper again made it necessary for us to consider additional economies. Our press construction permits us to run a 62 in. paper web. This saving we propose to use.

"It was obvious that some means of reduction more adequate and efficient than increased mat shrinkage was necessary to permit us to cut another ½ in. from the width of each plate."

Oliver outlined the procedure followed which, he commented, "makes us believe that we are ready in the stereotype department now to use 62 in. paper rolls." Before the changeover is effected at the Afro-American Newspapers, however, certain press adjustments have been outlined by Goss which must be made, he added. These include cutting 1 in. off the clamps on each end of the cylinder, bringing in the formers, cross association adjusted, etc.

The procedure in using a 62 in. roll involves reducing the 12 pica columns to 11 picas, 8 pts., and maintaining the present molding combinations. Reduction to 11.8 means a saving of 32 pts. across the page. The column rules are reduced from 3 pts. to 2 pts. to obtain the necessary 4 pts. which totals the ½ in. per page needed plus 3 pts. to spare.

Type from the four Teletypesetter equipped line-casting machines is set on 11.8 slugs and indented 2 pts. on each end of the line which results in an 11.4 line of type. Oliver said he uses a mat containing 24 per cent moisture, a plastic blanket and the free cylinder on the mat roller to obtain the 1⅛ in. shrinkage per page.

The finished plate measures 14¾ in. wide. There is a ⅜ in. margin on both sides and the plate measures the same length as the present 315 lines.

Modernization of Equipment is Completed

AN equipment modernization and expansion program was completed in March when the Printers' Finishing & Mfg. Co., Inc., of Baltimore, Md., installed six Baum folders. The modernization and expansion program has extended over a several year period. Included in the program was the opening of a bindery a year ago in Washington, D.C., under the company name of The Printers Finishing & Binding Co.

The Baum folder installation taking place in the Baltimore plant in March in addition to all of the other folders of the same make, consists of two 30 in. by 46 in. machines, two 25 in. by 38 in. machines, one 22 in. by 28 in. machine, and one 17½ in. by 22½ in. machine. Vice President Merrill I. Levie expressed his appreciation for the rapid installation of the six new folding machines. The erecting crew went to work Friday night when the plant closed for the week end. The folders were all ready to operate the following Monday when the force reported for work. A number of old folders were dismantled and removed from the folding department in the bindery during the erecting process.

The firm of Printers' Finishing and Mfg. Co. was founded early in the 1920s by Abe M. Levie. Commencing at the age of 12 Levie worked and gained experience in the printing field. Childhood and early manhood meant days of learning all he could about printing and binding. After a time he became head of the folding department of a lithographic company in Baltimore. Levie started in business for himself in 1922 in Baltimore with a rented space 20 ft. by 30 ft. His working force consisted of one employee and himself. His equipment consisted of one folding machine and one stitching machine. This was the genesis of 30 years' service to the printing trade.

In 1925, Levie reorganized the company into a corporation, the company name being changed to Printers' Finishing & Mfg. Co., Inc. which means that the company had to be moved to larger quarters. At this time, new departments were added, including die-cutting, gumming and varnishing.

In the year 1930, Minnie L. Levie entered in engagement with the company. Since that time, Mr. and Mrs. Levie have worked together to expand company volume and activities. In 1935 it was again necessary to secure larger quarters in a plant on the then outskirts of Baltimore. Again it was necessary to install additional services to the trade. These included mounting, calendar making, knife grinding for the trade, pebbling, and steel rule die making.

The present quarters were occupied in 1940 when Mr. and Mrs. Levie purchased an entire block, with a total space of 40,000 sq. ft. Thus within 18 years the company had grown from a 20 ft. by 30 ft. plant to one of 40,000 sq. ft.

During the past war, their son Merrill I. Levie was on active duty in the Pacific as a Warrant Officer Junior Grade. Upon his return from the armed service, Merrill I. Levie was placed in charge of Printers' Finishing & Mfg. Co., Inc. The son continued the principles of fair salaries, hospitalization benefits, modern equipment and fine service to customers. Employees who started with Abe M. Levie in the 1920s still are in company employ.

In 1951, Mr. Levie, jr., organized and instituted The Printers' Finishing & Binding Co., in Washington, D.C. Management of the two plants is handled partially through absentee management. The Baltimore plant is operated through Mr. Levie, jr., with the cooperation of Geo. S. Jones and Herman D. Norwitz as acting managers. The Washington, D.C., plant is also managed by Mr. Levie, jr., with Stephen and Lucille Bukowski as acting managers.

WHEN YOU'RE GOING TO MODERNIZE, MAKE ADDITIONS, OR BUILD A NEW PLANT...

COUNT NEW LINOTYPES IN YOUR PLANS!

For new Linotypes will save you money all these ways:

A move or addition usually means an expansion. And with new Linotypes, you can often increase your capacity with fewer machines.

Fewer machines require less space with the same production, leaving room for a machinist's section and space for future expansion.

It costs a considerable amount of money to disassemble, pack, reassemble and adjust old machines. And when you're all through, you still have ... old machines. New machines can be erected in your new plant, to your layout. Money that would otherwise be spent on moving old machines can be applied to the purchase of your new Linotypes.

By buying new machines at this time, you do your financing only once, for building, presses, machines, avoiding the need for raising more funds later.

These savings will help reduce the cost of your new Linotypes. And the end result will be greater production at lower cost! Your Linotype Production Engineer can give you real help with your expansion plans. Mergenthaler Linotype Company, Brooklyn 5, N. Y. In Canada, Canadian Linotype, Limited, Toronto.

• LINOTYPE • *Leadership Through Research*

Set in members of the Linotype Bodoni and Gothic Families

Record Huber Magazine

The 60 page February number is the largest single issue of the Huber News to be published by the J. M. Huber Corp. It is devoted to printing inks and their use by newspapers, book printers, comic magazine plants, the publications field and the box and container industry. This issue of the publication contains 101 photographic illustrations and art reproductions. One of the features of the Huber house organ is a photographic tour of Eastern Color Printing Co., Waterbury, Conn., showing the various operations involved in comic book printing. Another story is devoted to the New York *Times*. The bi-monthly is published for Huber by the Fred Wittner Advertising Agency, New York.

MMM Boston Branch

Opening of a new Boston branch sales office and warehouse located at 1330 Centre St., Newton Center, Mass., has been announced by officials of Minnesota Mining & Mfg. Co. Branch officials who will make their headquarters in the new building include: W. M. Hobelsberger, Boston Office Mgr.; J. H. Hargreaves, Abrasives Sales Mgr. for industrial and refinish trades; A. S. Drew, Sales Mgr. for general line tapes; H. B. Kosanke, Sales Mgr. for retail Cellophane tape; and J. E. Warner, Sales Supervisor for Scotchlite Reflective Sheeting.

Kromekote Cast Coated Two Sides

THE Champion Paper and Fibre Co. has announced a cast - two - side Kromekote coated sheet. Previously, Kromekote brand of cast coated paper has been available in a variety of grades such as litho, label, box wrap, cover, and postcard with the cast coating on one side. Manufacturer states Kromecote brand paper, cast coated two sides makes available a paper with the same high gloss and smooth printing surface on both sides of the sheet. May be printed letterpress or offset in single or multicolor. Champion is distributing through its merchant connections a colorful announcement. Copies of the folder are also available by mentioning PEE No. 315 in your request.

Forms Sales Organization

R. H. Mitchell, General Mgr. of Kidder Press Co., Inc., has announced that his firm has taken over the full responsibility of the A. E. Marconetti sales organization, following the recent death of Mr. Marconetti. In Kidder's new sales organization, Edward J. Peal, Chief Engineer of the Kidder firm, will assist Robert Zuckerman, former assistant to Mr. Marconetti. All sales and service matters will be handled by Peal and Zuckerman at the Kidder company offices in the Empire State Bldg., 350 Fifth Ave., New York 1, N. Y.

New England Agency

Linotype Parts Co., Inc., has announced the appointment of the House of Hansen, Inc., 470 Atlantic Ave., Boston 10, Mass., as exclusive agency for Star parts supplies and equipment in New England. Previously the House of Hansen acted as dealer for the Linotype Parts Co. Charles Dorr has been engaged to represent the Hansen firm in the New England area. John Busey will cover all of New York, New Jersey and Delaware, as well as the eastern half of Pennsylvania.

Supervisory Training

William F. Gutwein of Louisville, Ky., Chairman of the Intl. Supervisory Training Committee has been active during the past year in developing interest and action on the part of Craftsmen's Clubs over the country in the field of supervisory development. Many clubs are already actively participating in the Foreman's Management Program phase of the Committee's Five Point Program and practical and beneficial results have been obtained. Gutwein reports that there is hardly any section of the country that has not been reached so far. However, he feels that considerable more work to develop interest and action is needed.

Printing Equipment Engineer Classified Ads may be found on Page 87.

NOW...23
TECHNICAL BULLETINS AT REDUCED PRICES

for Directors of Manufacturing, Plant Managers, Production Managers, Mechanical Superintendents and Departmental Foremen.

The Research and Engineering Council of the Graphic Arts Industry has divided its various publications into four groups. Each group may be purchased separately or two or more groups may be purchased as desired.

The selected groups of bulletins offered contain dependable technical contributions to progress in four fields in the Graphic Arts industry. Each report is written in clear operational language understandable to anyone in the industry. Many prominent and well known technical men and printing plant executives have donated their time and talent in the preparation of these manuals.

The various publications have been divided by the Research and Engineering Council as follows:

COMPOSITION PUBLICATIONS—Price for the set is $2.50 which consists of Type Metals, No. C-1; Reproduction Proofs, No. C-2, and Transparent Proofs, No. C-3.

PLATEMAKING PUBLICATIONS—Price for the set is $4. The set consists of five separate publications: Electrotyping in the Government Printing Office, No. PL-2; Basic Requirements for Electrotypes; Magnesium Plates, No. PL-1; Plates, No. CONF-1, and Photoengraving Specifications Manual.

BOOKBINDING PUBLICATIONS—Price for the set of 10 publications is $2 titled as follows: The Process of Marbling Paper, No. B-1; Bookbinding Pastes, No. B-2; Bindery Glues, No. B-3; Miscellaneous Bookbinding Adhesives, No. B-4; Ruling Inks and Dyes, No. I-1; Bookbinding Leather, No. B-5; Bronze Stamping Leaf, No. B-6; Pyroxylin-Treated Book Cloths, No. B-7; Control of Warp in Book Covers, No. B-8, and Paper Boards for Bookbinding, No. B-9.

GENERAL PUBLICATIONS—Price for the set of five is $6. Titles are as follows: Detergents for the Printer, No. M-1; A Listing of Research Developments and Engineering Programs Pertaining to the Graphic Arts, No. R5-2; Preventive Maintenance, No. EQ-2; General Specifications for Operating Instruction Manuals, No. EQ-1, and Static Electricity No. PA-1.

Composition Set.....$2.50	Bookbinding Set.....$2.00
Platemaking Set.....$4.00	General Set.....$6.00

Complete Set.....$14.50

Loose Leaf Binder..... $5.00

Total Cost of 23 Publications and two Binders.....$19.50

(Two Binders will be required to hold the 23 Publications)

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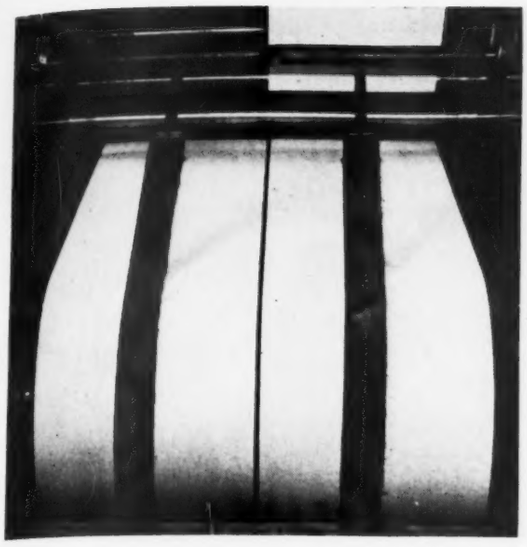

Two narrow newsprint rolls run as one roll at Ashland (O.) *Times-Gazette*. When trussed like this, the paper is fed into press to print inside pages. Thin flanged core sleeve permits close mounting on spindle.

Running Narrow Rolls

M. G. BACHMANN, Mechanical Superintendent at the plant of the Ashland (O.) *Times-Gazette*, worked out a way to make two narrow newsprint rolls do duty as one wide roll at times when full width rolls were not available. The *Times-Gazette* operates a 16 p. Duplex Tubular Press. In the first place, he had two brass bearings made with a very thin flange on one end. One of these was slipped in the core of one narrow roll of paper and the other was slipped in the core of the other roll. One was put in on the left-hand side of the core and the other on the right-hand side of the core so that when the two rolls are put together on the shaft the two brass bearings would come together. By having the flange very thin there is very little space between the two narrow rolls of paper. The two narrow rolls, placed as close together as possible, were then put on the regular spindle of the press in place of one wide roll.

A length of pipe was then mounted under the roll with a ratchet so that it could be turned. Two lengths of 3 in. canvas belting were then attached to this pipe and each length of belting brought up and around the outside of the two narrow rolls of paper. Each belt was placed to come in about the center of each narrow roll of paper. A 2 in. diam. by 8 in. long steel coil spring was then attached to the other end of each piece of belting and each spring fastened to a press tie bolt. The spring exert a pull of about 35 to 40 lbs. The purpose of these two 3 in. canvas belting bands, it is obvious, is to give tension. As the paper is fed to the press and the roll is reduced in diameter, the tension supplied by the belts is relieved, the pipe is turned a few notches, thus restoring the tension. It is reported by Mr. Bachmann that this device works satisfactorily and enables the use of single page width rolls of paper instead of double page widths for inside pages.

Setting Linotype Knives

Included in a recent issue of *Linotype News* is an article entitled *Care of the Linotype — How to Set the Trim*. While the writer of the article does not go into detail with respect to this important adjustment, presumably because of lack of space, yet the article contains a number of valuable suggestions for setting side trimming knives for the fellow who is not too familiar with the adjustments. Constant side trim, micrometer measurements and independent adjustments are discussed.

Important information regarding knife condition is given as follows:

Regrind in Pairs

"When adjusting knives on old machines, the problems are, of course, greater. It is well to keep knives in first-class condition by having them reground in pairs when the occasion demands. The number of times knives can be reground and still retain their efficiency is, of course, limited. Each time a pair of knives is reground, they necessarily become lower. This, of course, increases the distance between the face of the mold and the knives when the machine is in ejection position. The height of a pair of new knives is 0.875 in., which allows $\frac{1}{16}$ in. between the face of the mold and the knives at the lower edge, which represents the ideal condition. Each time a pair of knives is reground they become approximately 0.015 in. to 0.020 in. lower, depending upon their general condition.

Knives Should Be Parallel

"It is not recommended that knives be used when they have been ground to any figure below 0.800 in. Any time knives are used that have been ground lower than this, the distance between the mold facing and the knives is increased to such an extent that difficulty will be experienced. All such knives should be discarded. Furthermore, all side knives should be absolutely parallel, and, as previously stated, are always to be reground in pairs. A single knife should never be changed under any circumstances; always change them in pairs."

Safety Contest Winners

Winners in the Printing and Publishing Safety Contest for 1951 sponsored by the National Safety Council have been announced as the Lord Baltimore Press, Baltimore, Md.; Pullman Press, Pullman-Standard Car Mfg. Co. and Kingsport Press, Inc., Kingsport, Tenn., who finished in first, second and third order respectively. Winner of a special reduction in accidents award was the Government Printing Office, Washington, D. C. According to NSC, contestants in the 1951 contest reported a total exposure of over 51 million man hours out of which 495 injuries occurred. Compared with 1950, this is an increase of 75 per cent in the exposure and a 117 per cent increase in the reported injuries.

To Find the Right Man

The 10,000 mechanical and production executive readers of *Printing Equipment Engineer* are vitally interested in improving production methods. They prove that by reading *Printing Equipment Engineer*. Your Help Wanted Ad in the *Printing Equipment Engineer* Classified Section will bring response from highly qualified men. Rates on page 87.

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the Simco
MIDGET
is best of all—and least expensive!

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Pressman's Ink Manual

By George M. Halpern

PROBLEMS related to and caused by inks are covered in this 182 page reference guide for pressmen and beginners. Topics include: Relationship of ink to stock; common ink problems, their causes and remedies; where and when to use special inks; latest developments in printing inks; how to prepare and use an ink log; procedure for process printing; handy reference charts for mixing and matching colors, estimating inks, determining proper screen to use, and many others.

$6.25 per copy
Cash with order

PRINTING EQUIPMENT Engineer
1276 W. Third St.
Cleveland 13, O.

Production in Advertising

by David G. Hymes

A Handy Reference Guide for the Experienced Craftsman, Beginner, and Layman

A 392 page illustrated text covering all phases of the Graphic Arts, written in an easy-to-understand style. Contents include recent information on new processes, new techniques and new materials; step-by-step diagrams of mechanical processes; detailed presswork operations; copyfitting tables; type face specimens and suggested combinations; discussion of kinds of paper used in printing.

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PRINTING EQUIPMENT Engineer
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Miehle Press Shown in St. Louis — The Miehle Printing Press & Mfg. Co. in cooperation with the Simmons-Sisler Co. of St. Louis recently held an open house for offset printers of that city in the Simmons-Sisler plant. In operation were the Miehle 29 Offset Press and the Miehle 61 Two-Color Offset Press. A. O. Brossard, Vice Pres. of Simmons-Sisler, and Ralph Kleinschmidt, Miehle's St. Louis representative, acted as hosts. Shown here with the Miehle 29 are, from left to right: Elmer Hodges, Christian Board of Publ.; Mr. Brossard; an unidentified pressman of the Simmons-Sisler firm; and William Pelster, Comfort Printing and Stationery Co. Orrin Decker, Artcraft Litho, can be seen in the background.

Color-Vu Distributors

The Craftint Mfg. Co., Cleveland, O., has been appointed exclusive national distributors for Color-Vu Papers. Designed for comprehensives, finished art and backgrounds, Color-Vu Papers are used by artists, designers, decorators, advertising and display men, signwriters, schools, photographers, engravers and ink manufacturers.

Reports on Redistricting Intl. Craftsmen's Assoc.

A detailed preliminary report on redistricting the Intl. Assoc. of Printing House Craftsmen, Inc. was presented to the Board of Governors meeting in regular Mid-Winter Session in Cincinnati, O., recently by Chairman Basil M. Parsons through Deputy Chairman Henry Schneider.

The steady growth of Craftsmanship in the United States and Canada through the organization of many new clubs and the great increase in membership has reached a point where, it is felt by many Craftsmen, more Districts and District Representatives are needed. It is proposed to increase the number of Districts from the present 14 to 26 and grouping them in 9 Societies of Printing House Craftsmen. This arrangement would make it possible to have a member on the Intl. Board of Governors representing the districts in each Society.

The complete and final report on Redistricting will be presented by Parsons to the 33rd Convention in St. Louis on August 10-13, 1952.

Lots of Color

The San Jose (Calif.) *Mercury* and *News*, published morning, evening and Sunday, in 1951 printed 729 color advertisements. Two were in r.o.p. four color, 30 in three colors, and the balance in two colors. Of the total, 283 appeared in the *News*, 284 in the *Morning Mercury*, and 162 in Sunday's paper. Most of the color advertisements appeared on Wednesday, Thursday and Friday's editions.

Six Goss Headliner units, one color cylinder and one double reversible cylinder were installed and were put in operation on July 3, 1950. Additional reversing facilities will be installed soon to give more color printing flexibility.

The pressroom is under the supervision of Edward H. Bogard.

Installs Seybold Cutter —Shown here is the new 50 in. Seybold Auto Spacer paper cutter recently installed in the bindery of Brown & Bigelow, St. Paul, Minn. Examining a job at the cutter are (left to right): Carl F. Stuck, Harris-Seybold representative in the Twin Cities area; Jack Golden, Production Mgr. of the Novelty Dept.; Peter Letourneau, Foreman of the novelty bindery; and Paul Mobroten, Novelty Dept. Supt., all of Brown & Bigelow.

Patents

For The GRAPHIC ARTS

Covering patents issued March 4, March 11, March 18, March 25.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issued each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Binding, Cutting, Perforating:

2,585,433. BOOKBINDING MACHINERY for performing rounding and backing operations on batches of collated signatures for binding books is disclosed. The machine includes an endless conveyor having cooperating upper and lower conveyor members each comprising a pair of roller carrying chains. Pressure bars are positioned beside the path of each chain to engage the rollers on the chains and exert a desired pressure of the slats on the signatures. Free-running shaping rolls are carried on reciprocable supports and engage the spines of the collated signatures. Shaping rolls tamp the spines of the signatures into a predetermined form. Invented by John A. E. Burls, Kenton, England. Assigned to R. Hoe & Co., Inc., New York, N. Y. Application April 28, 1948; in Great Britain April 30, 1947. 3 Claims.

2,590,198. FEED AND TRANSFER MECHANISM FOR BOOK-TRIMMING MACHINES. The book feed mechanism comprises an endless conveyor having an upper flight disposed to carry books. A carrier frame is disposed below and parallel to the upper flight and rocker links support the carrier frame for movement. A lug carrier is guided for reciprocative movement along the carrier frame and a lug is secured on the carrier to engage a book on the upper flight when the carrier frame is moved toward the upper flight. Rack teeth are provided on the lug carrier and are engaged by a planetary gear driven by a sun gear. A fan gear drives the sun gear. Invented by Charles L. Mover, deceased, late of Chicago, Ill., by Clifford S. Bassett, executor, Chicago, Ill. Assigned to C. L. Mover Co., Chicago, Ill. Original application December 22, 1947 divided and this application May 5, 1949. 3 Claims.

2,590,351. MAGAZINE WRAPPING MACHINE provides for a continuous travel flatwise of a succession of magazines through the machine. The equipment for feeding a succession of wrappers under the magazines comprises an upslanting conveyor having a plurality of spaced upstanding fingers for engaging the wrappers edgewise. Guide members are positioned above and below the conveyor and are adapted to accommodate wrappers therebetween. The lower guide member has an inwardly facing L-shaped inner guide plate and an outer guide plate which cooperate to maintain the far edges of the wrappers in abutment with the inner guide member. Invented by Clarence J. Russell, Churchton, Md., Unassigned. Application January 7, 1948. 4 Claims.

Composing Room Equipment:

2,588,468. MOVABLE FORM LOCK, for a printer's type bed, comprises upper and lower spaced flat plates. One plate at one end has a slot extending longitudinally of the plate and there is an opening within the confines of the plate. Channel bars are located between the plates at opposite long edges, the open edges of channel bars facing outwardly. A pressure bar slides between plates near slotted edge and pins in the bar extended through the slot. A cam pivots between plates and engages pressure bar. Form lock engages one side of the bed and pressure bar engages the other side. Invented by Freeman Barney, Spring Lake, Mich. Assigned to The Challenge Machinery Co., Grand Haven, Mich. Application July 26, 1948. 1 Claim.

Feeding, Folding, Delivery:

2,587,843. COLLATING MACHINE is for interleaving perforated paper with

to do a job!

. . . and it starts with the *best equipment*. That's why we urge you to try these EASTERN Products in your plant:

- NEOPRENE BLANKETS ⅛", 3/16", ¼"
- TRU-MOLD CORK MOLDING BLANKETS
- DEEPMOLD BLANKETS
- PLASTIC MOLDING BLANKETS
- BACK-UP BOARD .015 FOR 18 GAUGE ZINC
- FLECTO GUMMED BACKING FELT
  (Individually packed 5 sheets per bundle)
- DOUBLE COATED CUT MOUNTING TAPE ¼", ½", 1", 2"
- DIRECT PRESSURE MOLDING MATERIALS
- EASTERN CIRCULAR SAW AND JIG SAW BLADES
- MATRIX DRYING MACHINES
- MATRIX SCORCHERS . . . MATRIX TRIMMING KNIVES
- ASBESTOS COVERS FOR ALL SCORCHERS
- CURVED AND FLAT CASTING BOARD
- COMPOSING ROOM AND STEREOTYPE EQUIPMENT

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SEND FOR YOUR COPY NOW

. . . and be sure to visit the EASTERN exhibit at the ANPA Convention in San Francisco . . . Booth 60.

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Free Analysis Service

Without obligation we'll be glad to send you a mailing envelope for forwarding to us a seven ounce representative sample of any type metal you want analyzed.

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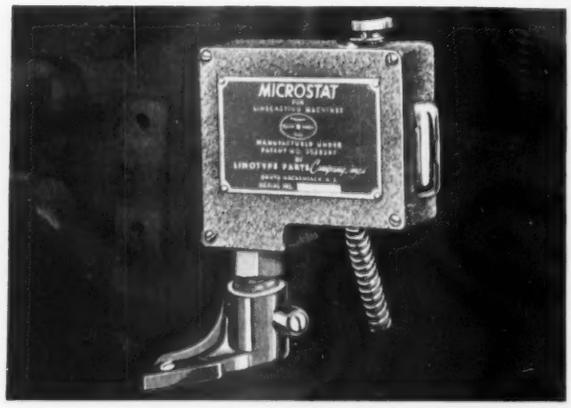
A NEW, LOW COST, PRECISION, THERMOSTAT

FOR LINOTYPE, INTERTYPE, LUDLOW AND ELROD MACHINES

STAR ☆ ☆ MICROSTAT

Shown mounted on a Linotype Electric Pot



A simple device that needs no maintenance and with no contact points to file. The STAR MICROSTAT is so sensitive that it controls the pot to an average of about 3 to 8 degrees from any given setting.

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Ohio Knife's Expansion —Shown here is the 30 thousand sq. ft. of production space being added by the Ohio Knife Co., Cincinnati, O., to its present knife manufacturing plant. In line with the company's policy, the current building program is the fourth major expansion made by Ohio Knife in the past ten years.

a carbon web. A frame having spaced uprights supporting a group of vertically spaced web feeding rollers is used for web collecting and feeding. Spaced studs at each end of the feeding rollers receive aligned perforations in the margins of the paper web. A pair of web assembling rollers are supported on the frame, midway between top and bottom of feeding rollers. A circumferentially spaced series of studs in one end of each of the assembling rollers enter spaced holes in the other rollers. Cutters on the frame sever the perforated margin from the webs. Cutters are also included for cutting the assembled webs into sections. Invented by Dewey L. Harrison, Dallas, Texas. Unassigned. Application February 26, 1949.

2,588,946. RECIPROCATORY SHEET FEED DEVICE FOR COLLATORS. A sheet feeder mechanism of the pusher type comprises a support for a pile of sheets, an element adapted to engage the top sheet and a base spaced from the element. The base is reciprocated along a predetermined path of travel and an elongated member is privotally mounted on the base for rocking movement about an axis. An anchor is mounted on the base on the side of the axis remote from the element and for movement in a direction transverse to the elongated member. Invented by Lester M. Walden, Cranford, N. J. and Nils G. Hernblad, Long Island City, N. Y. Assigned, by mesne assignments, to Frederick C. Came, Savannah, Ga. Application February 19, 1947. 10 Claims.

2,589,428. COLLATING MACHINE. This machine for assembling a plurality of different paper sheets comprises a plurality of sheet receiving means at separated stations to receive and support sheets in vertical stacks arranged in line formation. A gripper carrier overlies the sheet stacks and travels parallel to the line in which the stacks are disposed. A set of grippers equal in number to the sheet receiving means is carried by the carrier. The grippers automatically grip sheets from the stacks in sequence as said grippers travel over the stacks and they automatically release the sheets at a fixed point. Invented by Lewis C. Pearce, Berea, Ohio. Assigned to Pearce Development Company, Cleveland, Ohio. Application October 10, 1950. 36 Claims.

Printing Inks:

2,590,654. PRINTING INK comprises a vehicle which is the heat reaction product of monomeric styrene and monomeric acrylonitrile, with a tall oil-modified alkyd resin dissolved in a high boiling petroleum hydrocarbon of low kauri butanol value and a pigment. The pigment may be carbon black or light colors. Invented by Alfred F. Schmutzler, Teaneck, N. J. Assigned to American Cyanamid Co., New York, N. Y. Application April 16, 1949. 9 Claims.

2,590,655. AN INK claimed comprises an acrylonitrile and styrene modified tall oil ester of a saturated aliphatic polyhydric alcohol, containing 1 to 25 percent of acrylonitrile and 2 to 34 percent styrene wherein the total weight of reacted monomers is between 5 and 25 percent by weight based on the total weight of the modified ester, a solvent

.176? .147? .165? .152? .140? .169? .180? .145? .129?

What gauge?

Only Your Press and conditions can determine it... but regardless of the gauge required, TINGUE, BROWN has it between .012" and .120"

Check this complete line of press packing which offers the proper gauges or combination of gauges for every press condition.

COMBINO—An extremely durable clean printing laminated blanket. Gauges .062", .083", .093".

"TINGUE" COATED FELT—For those who prefer a softer packing. Gauges .083", .093".

UNCOATED WOOL FELT—Gauges .063", .072", .083".

TOP—Drawsheet is firm, durable, economical and of long life. Gauges .016", .025", .030".

GOLD TYMPAN — Drawsheet — An old favorite for flat bed presses. Gauge .012".

IMPROVED SATISFACTION — A fabric impregnated with "Neoprene" and coated with "Calvaprene." Gauges .024", .026", .030"

STERLING—The latest plastic drawsheet. Gauge .025".

CUSHION CORK*—A highly resilient underpacking. Gauges .059" to .085".

TINGUCORK*—Much firmer than "CUSHION CORK" and preferred where precision plates are available. Gauges .032", .055" to .086".

KORKER*—Under Blanket for older type presses or where an unfavorable mechanical condition exists. Gauges .058" to .070".

FOUNDATION—A firm, durable oilproof under packing laminated by duPont with "Neoprene". Gauges .032", .040", .053" to .085", .120".

*Reg. U. S. Pat. Off.

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and pigment. Carbon black or colored pigments may be used. Invented by Alfred F. Schumtzler, Teaneck, N. J. Assigned to American Cyanamid Co., New York, N. Y. Application August 15, 1950. 15 Claims.

Platemaking:

2,589,313. TREATING LITHOGRAPHIC PLATES. In the treatment of a lithographic printing plate, a solution is applied to the image bearing metal plate. The above mentioned solution consists essentially of a polysaccharic carboxy-ether. This synthetically prepared material affords advantages of uniformity, highly superior moisture attractiveness and plate protection. Invented by William H. Wood, University Heights, Ohio. Assigned to Harris-Seybold-Potter Company, Cleveland, Ohio. Application June 21, 1944. 12 Claims.

2,589,933. MACHINE FOR PRODUCING PATTERNS PHOTOGRAPHICALLY ON THE SURFACE OF COPPER AND LIKE ROLLERS is used for preparing printing rollers. The machine comprises jacks for supporting at an adjustable height the ends of the mandrel carrying the printing roller. A transparent cover passes around the printing roller and clamps a positive or negative of a pattern or design to be reproduced photographically upon the printing roller. Clamps hold the ends of the cover beneath the printing roller and means are provided for raising the jacks simultaneously to apply resilient pressure to the roller for tensioning the cover. Invented by Laszlo Frand; Sale, England. Unassigned. Application August 4, 1950, in Great Britain July 18, 1949. 1 Claim.

2,590,042. APPARATUS FOR PRODUCING CURVED OR PLANE SURFACES as required in the production of curved platens for job platen printing uses a fixture which is adapted to be applied to a machine in which a tool performs the work on a reciprocating base. The fixture comprises a work support pivotally mounted on the reciprocating base. A stationary cam is located on one side of base and a cam follower is mounted on base and is adapted to follow the contour of the stationary cam during reciprocation of the base. Means actuated by the movement of the cam follower during reciprocation of the base rotates the work support and the work carried by same in an arcuate path, whereby an arcuate path will be traversed by the tool with respect to the work. Invented by Charles F. Root, Cleveland, Ohio. Assigned to The Chandler & Price Co., Cleveland, Ohio. Application December 4, 1946. 9 Claims.

Printing Presses and Equipment:

2,587,606. CYLINDER ADJUSTING MEANS FOR PRINTING PAPER AND FABRICS uses a pressure cylinder and a printing cylinder for contact with the pressure cylinder. Bearings are arranged at opposite ends of the printing cylinder, each bearing including a conical member engageable with conical bores in the printing cylinder. A sleeved stub shaft entends from such conical member. A threaded spindle interconnects lateral extensions which connect the sleeves of the stub shafts. One extension is adapted to be laterally displaced relative to the other whereby the conical members may be moved into and out of the conical bores. Supports slidably engage the laterial extensions whereby length of the printing cylinder may be adjusted relatively to the pressure cylinder. Invented by Julien Dungler, Basel, Switzerland. Unassigned. Application September 26, 1946; in France June 11, 1946. 4 Claims.

2,588,199. STENCIL FRAME FOR SCREEN PRINTING. A support in a frame for printing stencils used in screen printing devices comprises in combination a tubular frame having flattened walls facing the frame opening. The walls are perpendicular to the plane of the stencil and a dovetail-shaped groove facing the stencil surrounds the opening of the frame. An insert made of thermoplastic binding material fills the groove at least up to its opening edges to contact the stencil. Invented by Theodor Bily, Zandov u Ceske Lipy, Czechoslovakia. Assigned to North Bohemian Machine Works & Foundries, National Corporation, Prague, Czechoslovakia. Application February 14, 1948; in Germany August 5, 1941. 2 Claims.

2,588,878. SCREEN PRINTING APPARATUS. This apparatus includes a rectangular, horizontal printing frame carrying a stencil screen, tracks along two opposite sides of the frame, a squeegee moving over the screen and a painting medium which is drawn by

Faster typesetting starts here

The Teletypesetter Perforator — with its compact touch system keyboard — enables the operator to prepare tape at high speed, entirely independent of the casting unit. The tape is then inserted in the Operating Unit on the composing machine, which goes to work automatically — producing type continuously at the maximum speed of the composing machine.

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TELETYPESETTER

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the squeegee across the frame. The squeegee is elevated to pass over the medium and stop means hold the elements elevated against downward movement. The squeegee engages the medium on the reverse movement for drawing same over the screen. Invented by Wallace M. Reemelin, Berkeley, Calif., and Roger W. Olmsted, San Francisco, Calif. Assigned to Foster and Kleiser Co., San Francisco, Calif. Application September 16, 1946. 2 Claims.

2,588,989. SCREEN PRINTING TABLE. A screen printing table comprises, in combination, supporting members for the table arranged so as to form a space between the members, and a plurality of spaced mounting members located on the supporting members so as to form between themselves spaces communicating with the space between the supporting members. A solid screen top is mounted on the spaced mounting members and dry air is supplied to the space between the supporting members. Suction means is located above the screen top so as to draw the drying air around the edges of the screen top. Invented by Gudo H. Rodenburg, Helmond, and Gilles Holst, Aalst, near Eindhoven, Netherlands. Assigned to N. V. P. F. van Vlissingen & Co.'s, Katoenfabrieken, Helmond, Netherlands. Application April 16, 1949; in the Netherlands April 3, 1948. 7 Claims.

2,590,010. PLATE CLAMPING MECHANISM for printing cylinders has a socket for receiving a wrench by which it is movable in a direction transverse to the direction of wrench insertion between a clamping and an unclamping position. A lock is slidably carried by the operating member and is moved by the wrench and is parallel therewith upon insertion of same in the socket. A plunger slides with the lock into and out of the socket and in a direction transverse to the direction of wrench insertion. A cooperating bevel on the operating member forces the plunger into the socket to hold the wrench in same upon movement of the lock by the wrench being inserted in the socket. Surface of operating member beyond bevel abuts the plunger to hold it within socket. As the wrench cannot be removed unless parts are fully clamped, pressmen can determine when plates are clamped or unclamped. Invented by Charles A. Harless, Riverside and Thomas H. Johnson, Rowayton, Conn. Assigned to R. Hoe and Co., Inc., New York, N. Y. Application November 4, 1948. 5 Claims.

2,590,044. FRANGIBLE PLATE SECURING MEANS FOR BED AND CYLINDER PRINTING MACHINES may be used in connection with a Miehle Vertical machine. The machine has a reciprocating carriage cooperating with an impression roller carrying a sheet to receive an impression from an inked image plate on the carriage. The mounting block for plate on carriage has a rigid face with spaced openings a vacuum chamber being connected with the face by means of the openings. An image plate of frangible material is positioned in abutting relation to the face. Cushioning material is interposed between the plate engaging parts of a stop and plate, the stop being positioned on the block to engage the image plate at points to inhibit the inherent tendency of the plate to creep. Invented by Anton Schaller, Milwaukee, Wis. Assigned to Perfex Corp., Milwaukee, Wis. Application May 1, 1947. 1 Claim.

2,590,321. A CONTINUOUS CYLINDRICAL PRINTING ELEMENT comprises a porous body which is permeable by fluid inks, dyes and the like and is provided with a printing surface including non-printing areas which are impervious to the fluids and leave printing areas which are porous and provide exit for the fluids from the pores of the body to the exterior of the printing areas. The printing element includes electrically conductive material which bridges the printing areas of the printing surface and has minute interstices through which the fluids exist. The conductive material is electrically charged. The electrode carries an opposite charge. The printing fluid is transferred by electric charges to the web. Invented by William C. Huebner, New York, N. Y. Unassigned. Application June 23, 1945. 11 Claims.

2,590,429. CYLINDER DAMPENER FOR OFFSET-PRINTING MACHINES

REMEMBER THIS . . .

The best photoengraver — with the best equipment — cannot produce satisfactory results on grainy, ripply, ridgy, off-gauge metal.

In EDES GRAVURE FINISH COPPER you get metal that is:

1. The most accurate gauge engraver's copper obtainable (never off-gauge)
2. The flattest surfaced engraver's copper possible (gives uniformly sharper contact with the glass).

. . . and yet it costs you no more!

Edes

The World's Finest Photoengraving Metals

THE EDES MANUFACTURING COMPANY, Plymouth, Mass., U. S. A.

ZINC · COPPER · HARD MATRIX ZINC · TRIPLEMETAL

Comprises an atomizer box having a longitudinal slot as an open top. A damping cylinder is located about the slot and a partition wall subdivides the box into two compartments. The top edge of the wall is spaced from the cylinder farther than the distance between the edges of the box walls forming the slot. Water is atomized in one compartment and the atomized water is carried forward by an air stream in the form of a jet of moist air and is thrown through the slot onto the cylinder which is dampened thereby. Invented by Max Ras, Zurich, Switzerland. Unassigned. Application June 9, 1950; in Switzerland March 20, 1950. 4 Claims.

2,590,507. INKING ROLL AND INK FEED MECHANISM THEREFOR uses a rotary roll of ink absorbent material. There is a tubular axle at the center of the inking roll having a plurality of openings along the length of same. A wick in the tubular axle extends the length of the inking roll and a plurality of wicks, smaller in transverse sectional area than the wick in the axle, have one end disposed in the bore of the axle and the other end extending into the roll of ink absorbent material. A rotary valve is operable upon rotation of the roll to supply the bore of the axle with a predetermined quantity of ink. Invented by James L. Carver, Birmingham, Ala. Unassigned. Application December 9, 1949. 5 Claims.

2,590,538. INKING MECHANISM FOR PRINTING MACHINES automatically replaces solvent evaporated from ink being used in a printing machine. The system includes an ink fountain, an ink reservoir, a suitably driven pump having a first connection through which it receives ink from the reservoir and a second connection through which it discharges ink to the fountain. Ink from fountain is returned to the reservoir through a third connection. A mechanism is included for determining the consistency of the circulating ink. Invented by William F. Huck, Forest Hills, N. Y. Assigned to R. Hoe & Co., Inc., New York, N. Y. Application May 30, 1945. 3 Claims.

Sheer Power

MONOMELT POWER SHEAR!

Accurate
Fast
Strong
Economical

● Cuts and trims copper, zinc and plastic plates . . . electrotypes, stereotypes. The Monomelt Power Shear is rugged and strong. Built for heavy-duty day-in, day-out service. Hardened tool steel cutting blades make clean, straight cuts. Saves time! Completely eliminates burrs! Speeds production! Equal to three saws. Cuts and trims up to 24" wide.

Maximum safety and protection. No flying metal chips . . . no dangerous whirling saws. Non-repeating foot-operated clutch.

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NPA

Printing and Publishing Division

Recommends Revocation of Zinc Order

Revocation of zinc order M-9, under which allocation and use of the metal is controlled, was recommended on April 9 by the Primary Zinc Producers Industry Advisory Committee at a meeting with the National Production Authority. Industry representatives said the order should be revoked because the amount of zinc available now in the United States exceeds the current rate of consumption with respect to overall tonnage.

It was suggested by the committee that, as a protection for small users of zinc, NPA retain a control provision whereby producers could be directed to ship the metal to consumers who encounter difficulty in obtaining supplies. The committee also said inventory provisions of existing NPA orders should be maintained. NPA officials told the committee that it is the policy to eliminate controls whenever the situation warrants such action, and revocation of the zinc use and allocation order will be given consideration.

EXECUTIVE Ⓘs

William C. (Pop) Herbert, President of Herbert Products, Inc., in Woodhaven, N. Y., passed away on April 5 at the age of 70 years. In 1915, Mr. Herbert founded the Herbert Mfg. Co. for developing and manufacturing ink dryers and static eliminators. The firm was incorporated in 1947 under the name of Herbert Products, Inc., with Mr. Herbert as its president. A Brooklynite by birth, Mr. Herbert lived there all his life, until five years ago, when he moved to Lindenhurst, L. I. He was a member of the Club of Printing House Craftsmen of New York,

Inc. He is survived by his wife, Jenny, two daughters, Evelyn and Nadine, and a son, William C. Herbert, jr., who is General Mgr. and Treasurer of Herbert Products, Inc.

Robert T. Braid will represent Ideal Roller & Mfg. Co., Inc., in the Detroit area, according to an announcement by E. B. Davis, Vice Pres. It was also announced that Ideal's Detroit office has moved to a new location at 6432 Cass Ave. Telephone number is Trinity 5-7300.

Emmett E. Flaherty and Arthur Murphy recently joined the staff of Gaetjens, Berger & Wirth, Inc. Flaherty, who has been named a sales and technical representative, previously was associated with Kohl & Madden. Murphy was formerly with Ideal Roller & Mfg. Co. Both men will work out of the GBW's Chicago plant.

John W. Reid, Treasurer of Mergenthaler Linotype Co., has been named a Vice Pres. He will continue to serve as Treasurer, a post he has filled since 1949. Reid joined Linotype in 1914, and has since progressed through various positions in the accounting department to become assistant to the auditor in 1922, assistant secretary and treasurer in 1928, and treasurer in March, 1949. During World War II, he served on the War Production Advisory Committee on Typesetting Machinery.

Alfred A. Banta has been appointed Service Mgr. of Intertype Corporation's Southern District Office, it has been announced by A. T. Mann, jr., Vice Pres. For the past two years, Banta has been a sales representative for Intertype's Southern District Office. He has been associated with the Miami (Fla.) *News* and Miami *Herald*, having served as assistant mail room foreman on the *News*. After completing his apprenticeship on the *News*, Banta studied line casting machine manufacture and assembly at the Intertype plant in Brooklyn, N. Y. He returned to the *News* in 1933 and was named chief machinist in 1941. Banta remained with that newspaper until 1949 when he joined Intertype as a field service engineer.

Herbert E. Cox, jr., has replaced Hugh Robb as Pressroom Supt. of the Detroit *News*. Cox previously was associated with the pressroom of the Pittsburgh (Pa.) *Press*.

The appointment of Irvin J. Bonn as head of the Production Control Dept., Hub Offset Co., Boston, was recently announced by Herbert Borden, Vice Pres. Bonn, a graduate of Carnegie Institute of Technology with a B.S. degree in Printing Engineering, was formerly in the production control and scheduling department of Spaulding Moss. He also worked in the U.S. Army Map Service and served in the U.S. Navy during World War II.

C. W. (Bill) Govier has retired as Production Mgr. of the Buffalo (N.Y.) *Courier-Express*. He first entered employment with that paper in 1939. A testimonial dinner was given in his honor on March 31. About 100 people from the *Courier-Express*, business associates and friends attended. Anthony Zaverella of the *Courier-Express* mechanical department presented a number of gifts which included a leather upholstered chair, metal table and typewriter. Among the other gifts were a table lighter, pen and pencil set and a wallet with money.

EXCELLENT REPRODUCTIONS . . .

Stereo men who judge by *results* use BURGESS MATS!

The *uniform shrinkage* of Burgess Mats . . . their *smoother faces* . . . their *greater plasticity*—these advantages smooth the way for flawless reproduction of detail, type, and tones.

And most important—Burgess' precise laboratory testing *from raw materials to finished mats* insures against any deviation from Burgess' higher mat standards.

BURGESS CELLULOSE COMPANY

Manufacturers and Distributors of
Burgess Chrome and Tone-Tex Mats
FREEPORT, ILLINOIS

BURGESS Chrome MATS

George W. Allison, Vice Pres. and General Works Mgr. of Mergenthaler Linotype Co. since 1944, retired from active service with the company as of April 1. Gordon B. Welch, who has been a Linotype Vice President since early 1951, prior to taking over the presidency of Davidson Corporation, Chicago, has been named Vice Pres. in Charge of Manufacturing, with C. J. Wilson, assistant works manager, assuming the duties of Works Mgr. Allison, who started with Linotype in 1919, was appointed assistant vice president and assistant works manager in 1942, and was elected vice president and general works manager in 1944. He will continue to render engineering consulting services to the company. Welch has been with the Linotype organization since 1946, at which time he was named president of another Linotype subsidiary, Linotone Corporation. He joined the parent company in 1948 to serve as director of research and later was elected vice president in charge of research. He holds a degree in mechanical engineering from the University of Kansas. Wilson joined Linotype in 1949 as assistant to the works manager. He was promoted to chief engineer shortly thereafter and named assistant works manager in March 1951. He attended the University of Colorado where he earned a BS in electrical engineering.

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on both line cuts and halftones.

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William M. Naeder (left) and E. W. Gordon (right) have been appointed sales representatives of J. Thomas McHugh Co. Both men were previously associated with New England Newspaper Supply Co. Naeder has also been connected with R. Hoe & Co. and the Todd-Haskins Newspaper Blanket Co., which later became part of New England Newspaper Supply Co. Gordon became connected with the New England Newspaper Supply Co. in 1932. He also served as vice president of the Intl. Printing Pressmen and Assistants' Union in 1906 and 1907.

Stuart H. Smith has been appointed Sales Mgr. of SKF Industries, Inc., according to an announcement by R. Robert Zisette, Vice Pres. in Charge of Sales. Smith, who makes his headquarters at the Philadelphia Plant No. 1, of the ball and roller bearing firm, was assistant sales manager prior to his new appointment. He joined SKF in 1934, and served as assistant district manager at Detroit, Cincinnati district manager, and as manager of industrial development. A native of Newport, Ky., he attended the University of Cincinnati. He resides at 1500 Montgomery Ave., Rosemont, Pa.

Edmund J. Flynn, for the past five years on the staff of the National Labor Relations Board, has been appointed secretary and industrial relations director of the Union Employers Section of Printing Industry of America, it has been announced by R. Mort Frayn, President of the Section. Flynn is a graduate of Indiana University and Harvard Law School. He succeeds Matthew A. Kelly, who has been appointed secretary of the Printers League Section of the New York Employing Printers Assoc. and director of the Association's industrial relations and personnel services. Kelly takes up his post in New York City on June 1. He succeeds O. F. Newkirk who has resigned after ten years as secretary of Printers League Section to become Business Mgr. of the Bronxville (N. Y.) *Review Press* and Printery.

Appointment of Thomas J. Dunne as special New York sales representative for Harris litho chemicals has been announced by A. Stuart Holford, Sales Mgr. of Harris-Seybold Co.'s Chemical Div. Dunne will work out of the company's New York office at 380 Second Ave. A native of Brooklyn, N. Y., he is a graduate of New York University and the New York Trade School. He was previously assistant production manager for the Chromolith Corporation, trade platemakers in New York, and was New York representative for Direct Reproduction, manufacturers of plastic sheet and film.

Conference Dates

(With Organization Names and Principal Officers)

American Photoengravers Association — 1952 Convention to be held in Chicago, hotel and dates to be announced later. W. K. James, President; Frank J. Schreiber, Executive Secretary, 166 W. Van Buren St., Chicago 4, Ill.

ANPA Mechanical Conference—1952 Conference, Fairmont Hotel, San Francisco, June 9, 10 and 11. Chairman of the Committee, L. J. Griner, Production Manager, Detroit *News;* Manager ANPA Mechanical Dept., Vernon R. Spitaleri, 370 Lexington Ave., New York 17, N. Y.

Fifth District Craftsmen's Conference—1952 Conference, Hotel Statler, Detroit, tentative dates June 20 and 21. President, Robert Knox, Michigan Typesetting Co., 457 W. Fort St., Detroit, Mich.; Secretary-Treasurer, Robert Wolf, Richardson-Taylor-Globe Co., 4501 Mitchell Ave., Cincinnati 32, O.

Gravure Technical Association—Secretary-Treasurer, J. E. Hazel, Room 4800, 30 Rockefeller Plaza, New York 20, N. Y.

Great Lakes Newspaper Mechanical Conference—1953 Conference, Deshler-Wallick Hotel, Columbus, O., January 10-13. President, Harry A. Miller, Mechanical Supt., Dayton (O.) *Daily News;* Secretary-Treasurer, Don Clark, Stereotype Supt., Grand Rapids (Mich.) *Press.* Co-chairmen, Manufacturers' and Suppliers' Committee, Ray Burgoon, Sales Representative, Mergenthaler Linotype Co., 192 Haldy Ave., Columbus 4, O.; Clarence Seaman, Vice President, Imperial Type Metal Co., 1276 W. Third St., Cleveland 13, O.

Illinois Newspaper Mechanical Conference — 1952 Conference to be held in Alton, Ill., dates to be announced later. President, James B. Mawdsley, Composing Room Supt., Alton (Ill.) *Evening Telegraph;* Secretary-Treasurer, Wilbur L. Augspurger, Peoria (Ill.) Newspapers, Inc.

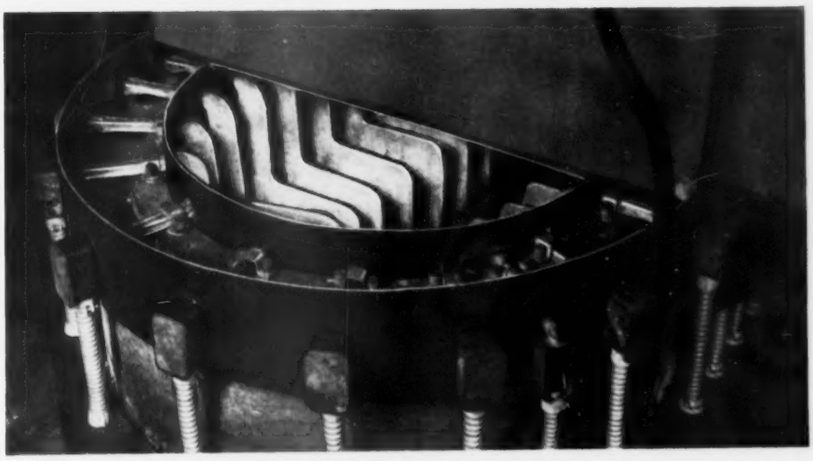
Intl. Assoc. Electrotypers & Stereotypers—1952 Convention, Cosmopolitan Hotel, Denver, Colo., October 13, 14, 15 and 16. President, C. C. Barnes, Ft. Wayne Engraving Co., 118-120 W. Superior St., Ft. Wayne 1, Ind.; A. P. Schloegel, Executive Secretary, 701 Leader Bldg., Cleveland 14, O.

International Association of Printing House Craftsmen—1952 Convention, Jefferson Hotel, St. Louis, August 10, 11, 12 and 13. President, J. Homer Winkler, Battelle Memorial Institute, 505 King Ave., Columbus 1, O.; Executive Secretary, Pearl E. Oldt, 18 E. Fourth St., Cincinnati 2, Ohio.

International Graphic Arts Education Association—President, George J. Bilsey, East High School, Cleveland, O.; Educational Director, Fred J. Hartman, 719 Fifteenth St., N. W., Washington 5, D. C.

International Typographic Composition Association—1952 Convention, Hotel Statler, St. Louis, Mo., October 9, 10 and 11. 1953 Convention, Mayflower Hotel, Washington, D. C., September 24, 25 and 26. President, John R. Connell, Connell Typesetting Co., 302 E. Eighth St., Kansas City 6, Mo.; Frank M. Sherman, Executive Director, 1015 Chestnut St., Philadelphia 7, Pa.

New BALTIMORE SUN Plant Uses Modern Metal Melting



The latest technical developments for fast, efficient newspaper production at the new Baltimore Sun plant include G-E Calrod* heaters which they use exclusively for all stereotype melting. And with a daily circulation of over 362,000 the paper *must* have reliable plate production.

Here's why 30 percent of U. S. daily newspapers (10,000 circulation and over) use G-E Calrod heaters for stereotype melting:

Dependable heat helps eliminate shutdowns, and the time lost by casting-room crews. With electric heat, a heater can be replaced quickly and easily without shutting down.

Cooler, cleaner working conditions improve efficiency in the casting room. No waste gases contaminate the atmosphere.

Plenty of hot metal because electric heat melts metal fast. Automatic temperature control keeps metal at correct temperature, and responds instantly when fast melting is necessary.

Small or large papers can use electric heat efficiently and economically. Melting pots can be converted to electric heat over a week-end.

Learn more about electric heat from your nearby G-E Sales Office, or write to: Sect. 720-61, General Electric Company, Schenectady, N. Y. for free bulletin GEA-5453. *Reg. U. S. Pat. Off.

GENERAL ELECTRIC

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Iowa Daily Newspaper Mechanical Conference — 1952 Conference, Blackhawk Hotel, Davenport, Ia., May 17, 18 and 19. President, Ross DeVine, Superintendent, Davenport (Ia.) *Times;* Secretary-Treasurer, Paul F. Kamler, Mechanical Supt., Clinton (Ia.) *Herald.*

Kansas Newspaper Mechanical Conference — 1952 Conference, Broadview Hotel, Wichita, Kan., September 13 and 14. President, W. A. Blackburn, Herington (Kan.) *Advertiser-Times;* Secretary-Treasurer, Larry Miller, Kansas Press Assoc., 701 Jackson St., Topeka, Kan.

Lithographers National Association — 1952 Convention, Greenbrier Hotel, White Sulphur Springs, W. Va., June 10, 11 and 12. President, Ernest W. Jackson, The Steck Co., Austin, Tex.; Executive Director, W. Floyd Maxwell, 420 Lexington Ave., New York 17, N. Y.

Mid-Atlantic Mechanical Conference — Jointly sponsored by the New Jersey Press Assoc. and the Pennsylvania Newspaper Publishers Assoc. Conference Director, Theodore A. Serrill, PNPA General Mgr., 209 Telegraph Bldg., Harrisburg, Pa.

Missouri Newspaper Mechanical Conference—1952 Conference, Hotel President, Kansas City, Mo., October 11 and 12. President, Mike Creasy, Composing Room Supt., Columbia (Mo.) *Tribune;* Secretary-Treasurer, O. K. Hammitt, Mechanical Supt., Moberly (Mo.) *Monitor-Index.*

National Association of Litho Clubs — 1952 Convention will be held in Philadelphia, hotel and dates to be announced later. President, Anthony Capello, 265 Rocklyn Rd., Upper Darby, Pa.; Secretary, Joseph H. Winterburg, Phillips & Jacobs Co., 620 Race St., Philadelphia, Pa.

National Association of Photo-Lithographers—Executive Vice President, Walter E. Soderstrom, 317 West 45th St., New York 19, N. Y.

National Printing Equipment Association, Inc.—Place and time of 1952 annual meeting to be announced later. President, Fred S. Tipson, T. W. & C. B. Sheridan Co., 129 Lafayette St., New York 13, N. Y.; James E. Bennet, Secretary, 140 Nassau St., New York 7, N. Y.

New England Mechanical Conference — President, Howard J. Mehigan, Stereotype Supt. Bridgeport (Conn.) *Herald;* Secretary-Treasurer, Walter C. Crighton, Comp. Room Supt., New London (Conn.) *Day.*

Northwest Mechanical Conference — 1952 Conference, Hotel Duluth, Duluth, Minn., September 20, 21 and 22. President, John Breen, Mechanical Supt., Duluth (Minn.) *Herald* and *News-Tribune;* Secretary-Treasurer, Ralph Carson, Dunwoody Industrial Institute, Minneapolis, Minn.

Pacific Mechanical Conference—1952 Conference will be held in conjunction with ANPA Mechanical Conference at Fairmont Hotel, San Francisco, June 9, 10 and 11. President, Clyde Bowen, *Wall Street Journal,* San Francisco; Secretary for the North, Edw. N. Conley, color press foreman, San Francisco *Chronicle;* Secretary for the South, Fred J. Moyer, Los Angeles *Daily News.*

Printing Industry of America—1952 Convention, Chase Hotel, St. Louis, October 13-16. President, Arthur A. Wetzel, Wetzel Brothers, 444 N. Broadway, Milwaukee 2, Wis.; James R. Brackett, General Manager, 719 Fifteenth St., N. W., Washington, D. C.

Research and Engineering Council of the Graphic Arts Industry, Inc. — President, Frank F. Pfeiffer, Reynolds & Reynolds Co., 800 Germantown Ave., Dayton, O.; Official Headquarters, Bernard Taymans, 719 Fifteenth St., N. W., Washington 5, D. C.

Screen Process Printing Association — 1952 Convention to be held in Chicago, dates and hotel to be announced later. President, John W. Key, Admiral Screen Print Corp., 627 W. Lake St., Chicago 6, Ill.

SNPA (Eastern Div.) Mechanical Conference — 1952 Conference, Andrew Jackson Hotel, Nashville, Tenn., August 25, 26, Chairman, W. D. (Red) Jacobs, Mobile (Ala.) *Press-Register;* Secretary, Ray B. Crow, Southern Newspaper Publishers Assoc., P. O. Box 1569, Chattanooga 1, Tenn.

SNPA (Western Div.) Mechanical Conference — Chairman, Ralph Moffett, Mechanical Supt., Dallas (Tex.) *Times-Herald;* Chairman of Supply Men's Committee, F. L. A. Gospach, Intertype Corporation.

Technical Assoc. of the Graphic Arts —1952 Meeting, Hotel Carter, Cleveland,

Looking into

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"Type high" to you means perfect thickness — finely measured metals — for the best engravings . . . for the best printing results.

To provide this perfect thickness, Zomo Electric Zinc, A-Z Alloy and Zomag engravers' plates are precision rolled in a mill designed and built for the manufacture of engravers' metals only. Every sheet is single rolled and guaranteed uniform in gauge within a tolerance of plus or minus 1/1000 of an inch.

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May 5, 6 and 7. President, Paul W. Dorst, 5573 Morrison Ave., Cincinnati 20, Ohio; Secretary-Treasurer, Paul J. Hartsuch, Intl. Printing Ink Div. of Interchemical Corp., 161 W. Harrison St., Chicago 5.

ABC of Offset

(Continued from Page 50)

are used extensively in retouching continuous tone negatives or positives, because of opacity and the varying densities possible of attainment during retouching operations.

Dyes and Stains

Dyes and stains, used as opaques and negative intensifiers are solutions which are absorbed by the gelatin emulsions. They are obtained from many sources, either as manufactured products or as by-products and derivatives from other substances, animal, vegetable or mineral. Anilines have been given preference over dyes and stains of animal or vegetable origin, and are most generally used throughout the industry.

The prime requisite of a dye is its solubility in water, its maximum properties of concentration and its ability to filter, out, or reduce the transmission of light rays.

The color range of retouching dyes is from a yellow-orange or amber color through varying tones of red, brown, grey and black.

It is important to know the nature of the dye or stain being utilized, and how best to remove it from the emulsion, if removal is required. Ignorance of the physical properties of the dyes can result in irreparable damage to a negative or positive, because of the difficulties encountered in attempted efforts to remove or weaken the dye's density during processing operations.

Opaque Masking

To render vast areas of photographic negatives opaque to transmitted light without the danger of distorting the films through the use of water soluble, miscible

Stereotyper's
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SIZE 7" x 23' x 27" • HOLDS 200 MATS

Cast Aluminum Top and Base

The Stereotyper's Dry Mat Storage Box and Humidor is equipped with two moistening Marinite Blocks on either side of the box. Removing these Blocks and soaking them in water for four or five minutes, then replacing them, box will retain moisture for a long time. Marinite Blocks can be easily removed and soaked in water at any time necessary. The top of the box is gum rubber sealed and the springs on the sides of the cover keep the box tightly closed at all times.

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P. O. Box 421 Lynnfield, Mass.

or thinned opaques, colored papers, plastic films and metallic foils are utilized.

The paper used for masking purposes may be either an orange colored stock known as goldenrod or a deep red paper sometimes called Cardinal Red masking paper.

When laid over a negative to be opaqued or masked out, the transparent images of the negative are visible to the operator, who with a sharp knife or razor blade cuts away some portion of the mask, laying bare that portion of the negative image through which the activating light rays will be transmitted, while rendering the remaining areas of the negative opaque to the passage of transmitted light.

Light-proof paper (black) such as is used to line the containers of photographic films and plates is also frequently used for masking. Cutting the mask is more difficult, however, if the window openings in the mask are required to be close to the area to be exposed to the action of light during the printing process, because of the absolute opacity of the material.

Colored Plastics

Sheets of colored Cellophane or other plastic material are also used for masking in rendering negatives opaque to the action of light. Being more translucent than paper, these plastic materials, generally a deep red color, are given greater preference over paper, because of their thinness and transparency. Windows are cut in the plastic materials in the same manner as that employed when paper is used.

Another desirable feature of plastic masking material is the manner in which it can be given a magnetic charge of static electricity, by rubbing with cotton during the process of application to the negative surface. This static magnetism holds the mask in close contact with the negative surface thus reducing to a minimum any danger of distortion or piling.

Self adhesive Scotch tapes, either red or black photographic varieties, are also opaque to activating light rays and are frequently used as masking material in addition to holding opaqueing masks to the film or plate surfaces.

Metallic Foils

Opaqueing masks of a permanent nature are obtained by the use of metallic foils, aluminum and lead. These are most generally used on glass, and are affixed to the surface of the glass with rubber cement and manual rubbing and friction.

India Ink

Water soluble India ink is also frequently used with a pen or fine brush for establishing keylines and for spotting small pinholes and correcting other defects. In many instances India ink is utilized as an airbrush pigment for effect-

Are You Watching Metal?

FOR the month of March, Cecil H. Wrightson, Inc., Advertising Typographer Company of Boston, distributed its regular postcard on which appeared a message addressed to the composing room foreman with the request that the card be posted. The request reads as follows:

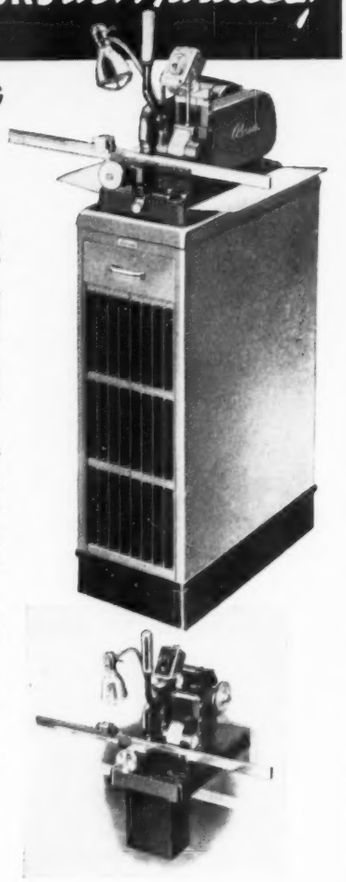
"During the past few months there has been a growing tendency to return metal containing a mixture of both Linotype and Monotype in the same container. *Will you ask your people not to do this?* They should be kept entirely separate as the metal formula is distinctly different. It means many hours of time sorting such metal to avoid machine trouble. An incorrect metal formula causes an imperfect printing surface. Returned saw trimmings containing zinc and copper shavings act as a poison in a metal supply. Please avoid this also. We strive to send you a quality product cast from a perfect metal formula. Ask the boys to cooperate with us in our endeavor. It works to the advantage of all.

"Cecil H. Wrightson, Inc.
"74 India St., Boston 10."

DO THE WORK OF HOURS *in Minutes!*

SLASH YOUR PRINTING COSTS WITH THE

Rouse POWER MITERER



If you need miters in either small or large quantities, no other machine nor method can turn out anywhere near as many perfect joining miters so quickly from strip material. That's how the Rouse Power Miterer can slash your printing costs by doing work in minutes that now takes you hours.

A Rouse Power Miterer won't cost you one cent! Printers the world over say that money paid for a Rouse Power Miterer quickly comes back through tremendous savings in expensive time. After getting your money back, you'll start collecting daily dividends from permanently lower operating costs.

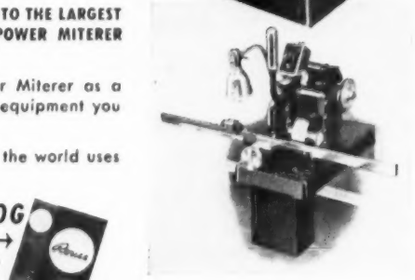
FROM THE SMALLEST JOB SHOP UP TO THE LARGEST PLANT, ONLY ROUSE MAKES A POWER MITERER FOR EVERY TYPE OF USE.

You may buy any Rouse Power Miterer as a bench model or with any other equipment you wish.

Virtually every printing plant in the world uses one or more Rouse products.

NEW ROUSE CATALOG

Write for your copy TODAY!



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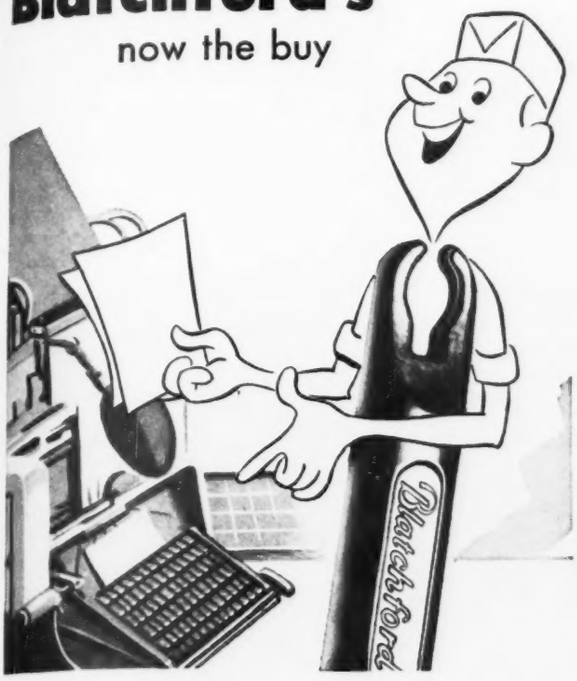

Today, with costs soaring, your men and your machines must produce to capacity to earn you a profit.

For example, consider the performance of your metal stock. If it is operating below par, here are three reasons to "go Blatchford."

First, Blatchford gives you clean, solid casts. It melts smoothly, flows freely, molds sharply. *Fewer imperfect casts... greater operating efficiency!*

Second, Blatchford Metal gives you a slug or plate that's true to the mold. And its fluidity helps you "get" every detail of mat or matrix. *Less porosity... sounder plates!*

Third, Blatchford Metal gives you long, steady, clean press runs. It stands the gaff. *More dependable performance... fewer press stops.*

Built to save, every step of the way, Blatchford can help your skilled manpower and expensive machinery produce to capacity.

Try Blatchford. See for yourself how it can help raise your production... lower your costs.

Free chart for remelt rooms tells, step by step, how to keep metal "healthy" and *cut dross loss* with Blatchford Type Metal Flux. Just write, Box PE-5, the Blatchford office nearest you for "Re-melt Chart."

NATIONAL LEAD COMPANY Atlanta, Baltimore, Chicago, Cincinnati, Cleveland, Dallas, Philadelphia, Pittsburgh, St. Louis; New York: E. W. Blatchford Co.; New England: National Lead Co. of Mass., Boston; Pacific Coast: Morris P. Kirk & Son, Inc., Los Angeles.

Blatchford

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ing blends and tonal graduations whenever negative correction so requires.

Greasy Opaques

It is frequently desirable to opaque certain areas which must be cleaned off quickly for a possible change-over of the negative for re-use for other areas.

In this category of opaques, we include lithographic crayons and tusche. After application of these greasy substances, the worked areas are dusted with powdered graphite or lampblack, which renders the greasy substances opaque to the action of transmitted light. After being applied, this form of opaque is quickly removed with a pledget of dry cotton, whenever removal is required. It is a simple matter to reopaque the negative, for rapid change-overs, since water washing of the negative is not necessary.

Plastic Lacquer Opaques

Deep red colored plastic lacquers are frequently used as a combination opaque and staging solution. This type of material is also a water repellent and is unaffected by photographic chemical solutions. Removal of the plastic lacquer depends upon its origin, and the specific solvent to effect its complete removal.

One of the major detriments in using this type of opaque is that the pigmentation may not be entirely removed during removal operations, thus possibly creating irreparable damage to the negative.

Some Words of Caution

1: Red water color opaque must be thoroughly mixed and stirred frequently during the day's work. This type of opaque, when permitted to thicken unduly, and without frequent stirring, will dry with a sticky and damp coating of the incorporated fixatif, or adhesive binder.

2: India Ink—as originally compounded is not developed for use in photographic reproduction, and when used for spotting and lining or ruling, frequently reticulates on the emulsion. This is not alone due to the ink, but can frequently be laid to the lack of complete washing of the negative. Complete reliance upon this material should not be given as a perfect opaque in this particular usage.

3: Dyes when used for spotting and opaqueing, must be densely concentrated.

4: Avoid building up any opaqueing materials or to much overlapping of films, papers and layers of self-adhesive tapes.

Opaquing

This job is accomplished, by placing the negative upon a light table, and with brush, pen, crayon or other medium cover all unwanted openings, pinholes or other areas, rendering such defects or unwanted areas opaque to transmitted light.

Failure to perform this operation will result in poor plates, which will be spotted, and in some instances tend to be scummy and dirty in appearance. Opaqueing is the first and frequently the most important of post camera operations.

(*To Be Continued*)

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International Newspaper Supply Corp.

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Workflow Principles

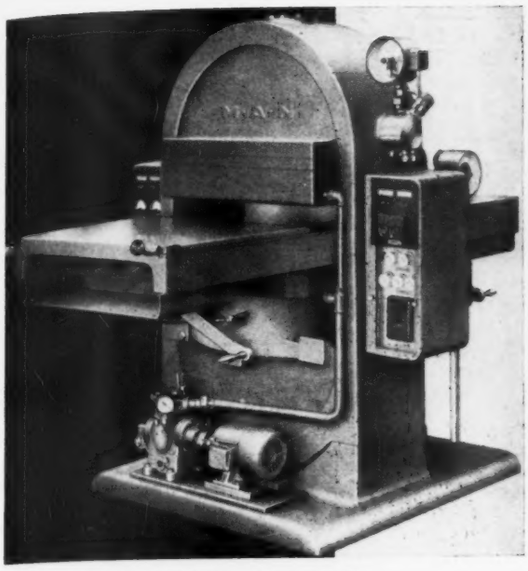
(Continued from Page 42)

getting raw material into the plant and finished product out of it with a minimum of muscular effort. Floor load is an important item on the check list. It is just as necessary to have a competent architect or engineer verify the permissible floor load as it is to have a title search made when buying real estate.

Preliminary Workflow

Many other check points will present themselves during the course of inspection of a proposed building, whether it is to be leased or constructed expressly for the plant. When the proposed quarters are considered satisfactory in having met the demands of the check list in all details, then a preliminary workflow layout is made on the floor plan to determine whether or not there is sufficient floor space to house the plant, plus any expansion which will be required within a reasonable time in the future. Such a preliminary layout seldom becomes the final arrangement, because so many ideas for improvement enter the picture that several revisions are usually made.

Proper work flow is the *sine qua non* of



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January 28, 1952

LINOTYPE PARTS COMPANY, INC.
Hackensack, N.J.

Attention Mr. Emil Bendow, Sales Manager

Dear Mr. Bendow

For some time I have been intending to write you with reference to our success with the STAR Automatic Quadding attachment. We have three as you know. I am happy to report that the installation of the Quadders on three of our ad machines has given us such faster production with no greater effort on the part of our operators - and our operators are thoroughly sold on the equipment.

We find, after two years of operation, that parts and labor maintenance costs are practically nothing.

I certainly recommend the STAR Quadder to anyone interested in increasing production.

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THE ZANESVILLE PUBLISHING COMPANY
Earl C. Schaeffer
Production Manager

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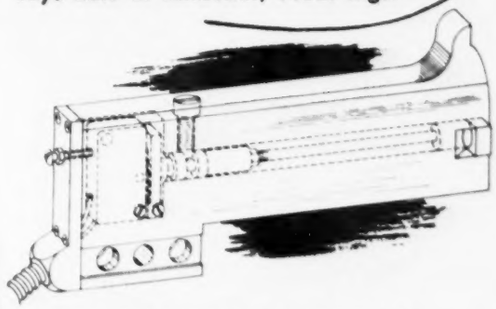
"Maintenance costs practically nothing"

says Earl C. Schaeffer, Prod. Mgr.



The STAR QUADDER first introduced the ELECTRO-PUMP STOP three years ago. Shown here is the improved left hand vise jaw and safety switch which is the heart of the ELECTRO-PUMP STOP.

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profitable production in the printing plant. Here are some of the problems posed by a medium size newspaper operation.

To work backward, the desired end product is multiple copies of the paper delivered at the shipping dock from the press which is plated with the type and illustrations made up and set from copy furnished by the manufacturing department. That's the direct-line of production, but it is made possible only by several auxiliary lines converging at the proper place and the proper time.

For example, copy is first divided into two classes: news copy and ad copy. The news copy is handled by its own department, set on its own machines, proofed and corrected.

Ad copy handling, because it takes a vastly different type of treatment, goes to another specialized department. Here, both machine set and hand set type are assembled with illustrations into various size units.

These two sub assemblies are then brought together in terms of standard parts or pages. When all the standard parts necessary to complete the product have been manufactured, they go to the final assembly which consists of molding the mats, casting the stereos and plating the press for printing the paper.

In each of these separate operations order and sequence are the keynotes. Translated into terms of the equipment necessary to perform all of the required operations, machines and materials must follow the same rules of order and sequence. Any deviation destroys the direct-line work flow principle and hence some of the advantages to be derived from it.

Employee Relations

BEING practical in employee relations was urged by Richard H. Bovard Executive Secy., Photoengravers Assoc. of Southern California, in a recent talk before members of Printing Industries Association, Inc. of Los Angeles. Bovard said paying attention to personalities is not a luxury which can be afforded only by a few large companies. Knowing the employee, being honest, fair and firm and molding a production team are the three fundamentals of practical employee relations, according to Bovard. He further advised that in printing the employed work force is 50 per cent of the business and therefore, the plant practicing the three fundamentals is successful and the plants not doing so do not get results.

Use Templates for Layout Work

In laying out the plan for arranging machinery to the best possible advantage, the work is made easier by the use of templates, cut out in the same scale which was used to reduce the floor area to manageable size. The actual placing of the templates on the floor plan sheet follows certain pattern arrangements which, over a period of years, have been found to be most advantageous. These patterns vary with the contour of the room. Also, the size of the shop, which is often judged by the number of its slug casting machines, has a bearing on the style of pattern used. Logical sequence of each separate operation, and its proper timing so that it will be ready for each succeeding operation are the two considerations which dictate these patterns.

Spacing the Machines

Spacing of machines is the only variable we have to work with in planning a layout. The proper equipment in proper amount, and the total available floor space are fixed quantities. They cannot be altered easily. Even if a great deal of floor space is available it is not good practice to place pieces of equipment too far apart, any more than it is to compress them too much. Extra floor space should be looked upon in terms of future expansion, rather than as opportunity to open up too broad aisles.

Regard for Operation Sequence

Direct-line layout and adequate, modern equipment are inseparable compon-

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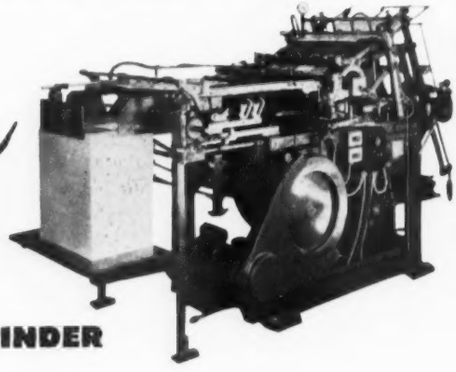

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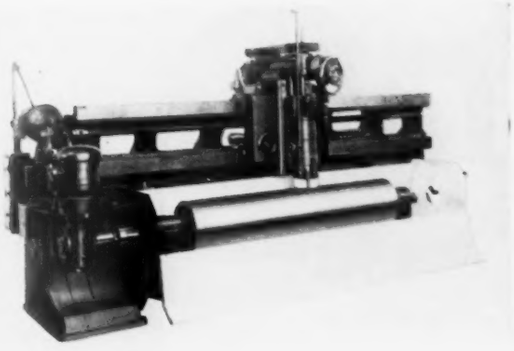

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ents of profitable printing production. The value of modern equipment is partially destroyed when that equipment is illogically placed without proper regard for sequence and timing of subsequent operations. Conversely, a good layout cannot be effected through the use of obsolete, space wasting material. Modern equipment is engineered for compactness and efficiency, making it time-saving as well as space-saving. It is readily adapted to the well planned layout. Working with templates on a floor plan sheet, it is easy to see the shortcomings of obsolete equipment. They stand out like sore thumbs.

In summary, the use of modern equipment in well-balanced proportion, properly arranged so that normal workflow results in the output of the various departments reaching the next successive stage in completed form and at the proper time makes for direct-line production. It provides a continuous flow of work from one end of the plant to the other. Productive activity flows in one direction, like a great river system with its tributaries.

Among the advantages to be gained from the plant set up on solid work flow principles are these: (1) There is a minimum of time consuming, wasted motion spent in back tracking; (2) Direct-line layout facilitates scheduling and control—it reduces the handling of type and forms, since components move to the proper place at the proper time; (3) Floor space is conserved for work in process; (4) Bottlenecks are eliminated; (5) Supervision is made easier, and (6) Cost of production is lowered, and production efficiency is raised.

Light and Color

(Continued from Page 32)

be painted a color so dark that reflectivity would fall to a level approaching zero. No reasonable quantity of illumination could accomplish a successful job of lighting in such a space. Conversely, the same spaces could be given a reflective factor far above the 60% limit by the use of white paint. Such a space would be just as difficult to light satisfactorily because of excessive reflectance. Eye strain would result from either of these conditions; in the former instance because of the strong contrast between the lighted surface of work in progress and the surrounding dark surfaces; in

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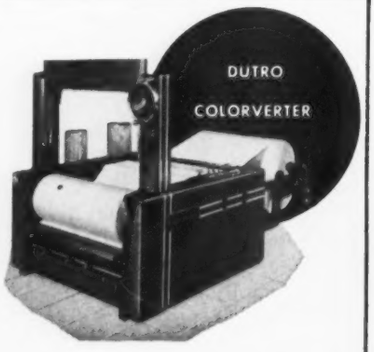

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the latter case because no relief from the highly lighted work surfaces is provided.

Color and Reflectance Range

While cleanliness of walls, ceilings, etc., contributes much to the efficiency of a lighting system, it is upon color, more than any other factor, that the range of reflectance in a well designed lighting installation depends. Accepting white as the color providing the highest reflectance factor, optimum seeing conditions are accomplished when added color lowers its reflectance to a level where the contrast between the work surface and surrounding surfaces does not produce eye strain. In the interest of high lighting efficiency, it is usually desirable to keep the reflectance factor as high as is consistent with eye comfort.

Blue-Green Tones Generally Favored

The colors to be used in lowering the reflectance of basic white may vary with individual taste, the nature of the work and product and similar other factors. For the printing plant blue-green tones have found general favor. Green, nature's own color, has a quality of restfulness for the eyes which is effective even in its lightest shades. As eyes are lifted from the work, if they can rest upon a color that relaxes them, much is done to relieve fatigue and strain.

Off-White Ceiling

For many mechanical areas of a printing or publishing plant an off-white ceiling with upper walls of a blue-green, approximating the lightest tones on a dollar bill, have been found satisfactory. The white, or off-white, ceiling provides maximum reflectance and is above general eye level. With upper walls of light blue-green a relatively high reflectance is combined with an eye restful tone. For the lower wall, where light colors will show soiling, a tone several shades deeper may well be used. Shades of gray, gray-green, tan, buff, etc. may also be used in similar manner, keeping the upper walls as light in tone as is eye-comfortable.

Paint Manufacturers' Specifications

Several of the leading paint manufacturers have given special attention to the problem of coordinating light and color and have worked closely with illuminat-

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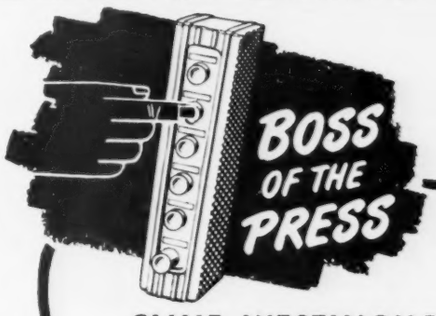

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Adds Two-Color Harris Press—A recent addition to the pressroom of the Colwell Press, Inc., is this two-color 35 in. by 45 in. Harris offset press which becomes the largest press now operated by the Minneapolis firm. Through the Colwell firm's subsidiary, Lithocraft, Inc., the company operates eight offset presses. From left to right are Leo Smith, Asst. Pressman; George Geronsin, Pressman; Felton Colwell, President of Colwell Press; Carl Struck (kneeling), Harris-Seybold representative in the Twin Cities area; and Harry Waldeland, Plant Supt. Colwell is a director of the Lithographic Technical Foundation and a board member of Printing Industry of America.

ing authorities in developing color standards. Their color studies cover not only the relation of color to lighting, as it relates to walls, ceilings and other surfaces, but to the work surfaces and machinery as well. Their recommendations can lead not only to better lighted and more attractive working surroundings, but also to greater safety. Any printer or publisher facing problems of this kind will profit by allowing them to survey his plant and offer their suggestions.

The Aesthetic Approach

While this facet of the subject of color has not yet achieved the general acceptance of its more measurable qualities, an appreciation of the practical values in the aesthetic approach to color is growing. It is known beyond speculation that certain colors stimulate while others tend to relax those exposed to them. It is also known that the degree of stimulation, or relaxation, varies with individuals. Convinced of the potency of color as an influence upon performance, a leading industrialist recently made sweeping changes in the office of his promotional and product planning staff. He became convinced that the somber tones of their surroundings were lulling these fellows into a state of apathy whereas the future of the business called for imagination and a creative urge. How effectively these changes in surroundings operated in the desired directions may not yet have been sufficiently demonstrated, but the idea is there and alert printers and publishers can well give some thought to its possibilities. Maybe there are spots in your plant where relaxation and repose should be cultivated. More probably there are spots where color could build a fire under a low steaming boiler. It's worth a thought.

Smart merchandisers have learned that color also has an influence on sales. Even that angle may have a place in the printing plant.

Returning again to lighting, it is possible, even probable, that any excursion into the field of color as an aesthetic value will bring a departure from the highest attainments in lighting efficiency. Walls and surfaces which produce a satisfying artistic or psychological result may have high light absorbing rather than high light reflecting qualities. In any event, the amount and quality of light will need to be worked out as part of the team of light and color, and if more light units are needed to produce the desired result, they are well invested.

Graphic Arts Awards—Two certificates of excellence have been awarded to Eastman Kodak Co. by the American Institute of Graphic Arts. The awards were made for sponsorship and engraving quality of the publication, *Kodak Bulletin for the Graphic Arts*. The bulletin will be shown in the 1952 Printing for Commerce exhibition. Printing done by John P. Smith Co., Rochester, N. Y.

Above, comparing a layout of a future Bulletin cover with artwork on the camera board are (left to right): Dr. Walter Clark, Head of the Graphic Arts Research Div. of Kodak Research Laboratories; William H. Roberts, Editor of the Bulletin; Carl M. Mattern, Head of Kodak Engraving Dept.; and John McMaster, Manager, Graphic Arts Sales Div.

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May 1952

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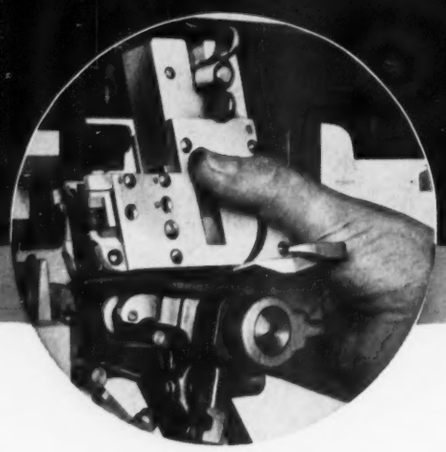

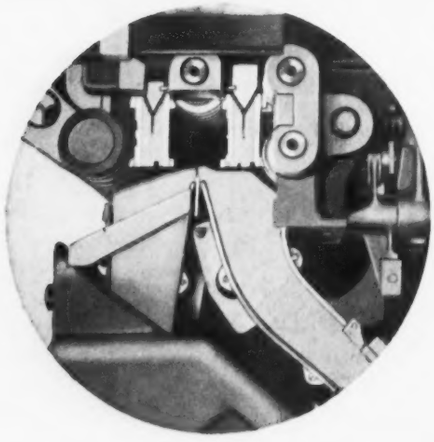

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